

BMS 电池管理系统

Battery Management System

使用说明书

User's Guide

泰威能源集团有限公司

Tell Way Energy Group Limited

目录

1 概述 Introduction	4
2 特点 Features	4
3 系统构成 Composition of System	5
4 产品命名规则 Package Information.....	5
4.1 系统命名 System Naming	5
4.2 终端模块 Terminal Modules.....	6
4.3 中控模块 Central Module.....	6
4.4 集成模块 Integral Module	6
4.5 显示模块 Display Module	6
4.5.1 组合仪表 Dashboard.....	7
4.5.2 液晶显示器 LCD Display	7
5 技术参数 Parameters	7
5.1 终端模块 Terminal Module	7
5.2 中控模块 Central Module.....	9
5.3 集成模块.....	10
5.4 显示模块 Display Module	11
6 安装 Installing.....	11
6.1 终端模块 Terminal Module	11
6.1.1 DX201, DX101	11
6.1.2 DX202,DX102	12
6.1.1 DX203, DX103	12
6.2 中控模块 Central Module.....	13
6.2.1 DK201, DK101	13
6.2.1 DK202, DK102	13
6.3 集成模块 Integral Module	14
6.4 显示模块.....	14
6.4.1 仪表.....	14
6.4.2 液晶显示器	14
6.4.2.1 XS201-70,XS101-70	14
6.4.2.2 XS201-35,XS101-35	15
7 配线(Wiring).....	16
7.2 供电 Power Supply	17
7.2.1 车载供电 Power Supply For Vehicle System	17
7.2.2 非车载供电 Power Supply For Non-Vehicle System	18
7.3 终端模块 Terminal Module	18
7.3.1 DX201, DX101	19
7.2.2 DX202, DX102	22
7.2.3 DX203-8, DX103-8.....	23
7.3 中控模块 Central Module.....	24
7.3.2 DK201	24
7.3.2 DK202	26
7.4 集成模块 Integral Module	28

7.5 显示模块 Display Module	31
7.5.1 仪表 Dashboard.....	31
7.5.2 液晶显示器 LCD Display	33
7.5.2.1 XS201-70,XS101-70	33
7.4.2.2 XS201-35,XS101-35	33
8 显示模块操作说明 Operation of Display Module	34
8.1 仪表 DashBoard.....	34
8.1.1 表盘说明 Layout of the face.....	34
8.1.2 表背说明 Layout of the back.....	35
8.1.3 按键说明 Key Description.....	36
8.1.4 液晶显示 Display On LCD.....	36
8.1.5 设置时间 Steps of Set Time.....	37
8.1.6 视频显示 Video Display	45
8.2 液晶显示器 LCD Display Module	45
8.2.1 XS201-70,XS101-70	45
8.2.2 XS201-35,XS101-35	46
9 参数设置 Set Parameter.....	50
9.1 参数设置需求 Requirement for Set Parameter	50
9.2 参数设置步骤 Step of Set Parameter	53
10 通信 Communication	58
10.1 通讯硬件要求 Hardware Requirement.....	58
10.2 地址分配 Allocation of Module Address.....	58
10.3 数据帧 Communication Frame	58
10.3.1 BMS 终端模块 Terminal Module.....	58
10.3.2 BMS 中控模块 Central Module	59
11. 应用实例 Instance of Application.....	62
11.1 除草机 Lawn Mower	62
11.2 其他参考案例 Other instances of aplication	66

特别注意!!

在模块负责管理的电池没完全正确地接好之前，不得插上电压采集接插件。 在需要更换电池之前，也必须先拔出电压采集接插件。每次插入电压采集接插件之前一定要仔细检查一遍，确保本模块负责管理的电池正确连好，否则有可能永久损坏模块。

Attention!!

Don' t plug in connector which samples the cell voltage before all cells, that are managed by this module, have been correctly linked. Unplug this connector before making any cell replacement. Every time when you plug in this connector, double-check the connection to make sure all cells, which have been managed by this module, have been correctly connected or permanent damage may occur.

1 概述 Introduction

泰威电池管理系统用于监测并指示电池状况(电压、温度、电流、剩余能量)、在异常情况下向用户发出报警信号(声光)、严重时根据制定的控制策略切断电力传送链路以保护电池从而延长电池使用寿命,另外电池管理系统还有能量均衡作用,使得系统中电池剩余能量趋于一致,延长系统的整体放电时间。泰威电池管理系统的功能如图 1-1 所示。

本系统可广泛应用于新能源汽车、不间断电源(UPS)、太阳能或风能储能电站、应急移动电站等领域。

TW BMS is used to supervise battery by measure its voltage, temperature, current and SOC (State Of Charge), give out alarm under wrong circumstance, cut off electric power link in severe situation in order to protect battery and make its life longer. BMS can balance energy among batteries to make them more identical and expand its discharge cycle. The Function of TW BMS is illustrated in Fig1.

TW BMS can be used in hybrid power or electric power vehicle, Un-interrupt Power System (UPS), Solar power or Wind power Stations or Mobile Emergent Power Station.

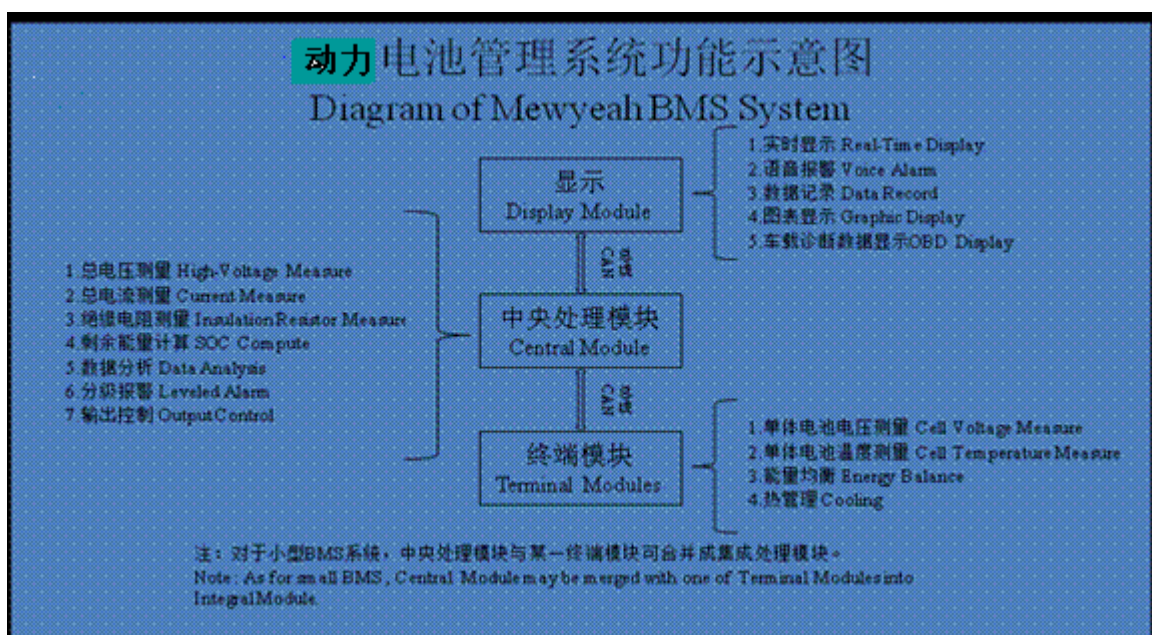


图 1-1 电池管理系统功能示意图
Fig.1-1 Function of Mewyeah BMS

2 特点 Features

- 1) EC 产品认证, TS16949 企业认证, 国家级软件企业认证。多重认证, 产品品质值得信赖。
EC Certified, TS16949 Certified and National Software Enterprise Certified guarantee product quality.
- 2) 分级报警安全控制机制确保系统高枕无忧。
Leveled Alarm and control strategy safeguard battery system.
- 3) 数据记录功能(可选)--通过查询历史数据, 了解相关产品实际使用性能, 有助界定质量责任。
Data Record (Optional)—Way to know performance of relevant product and help to distinguish quality responsibility.
- 4) 智能学习功能, 提高了 SOC 计算的准确性。
Intelligent knowledge acquisition ability improves the accurate of SOC.
- 5) 容错技术, 提高产品可靠性。
Fault tolerant Technique enhances system reliability.

3 系统构成 Composition of System

如图 3-1 所示，BMS 系统由三大部分组成：终端模块、中央处理模块、显示模块。当系统电池总数少于 24 个时，中控模块可以和某一终端模块合并以节省成本。

Illustrated in Fig. 3-1, BMS is comprised of three parts: Terminal Modules, Central Module and Display Module. When number of battery is less than 24, Central Module may be merged with one of Terminal Modules into Integral Module in order to cut cost.

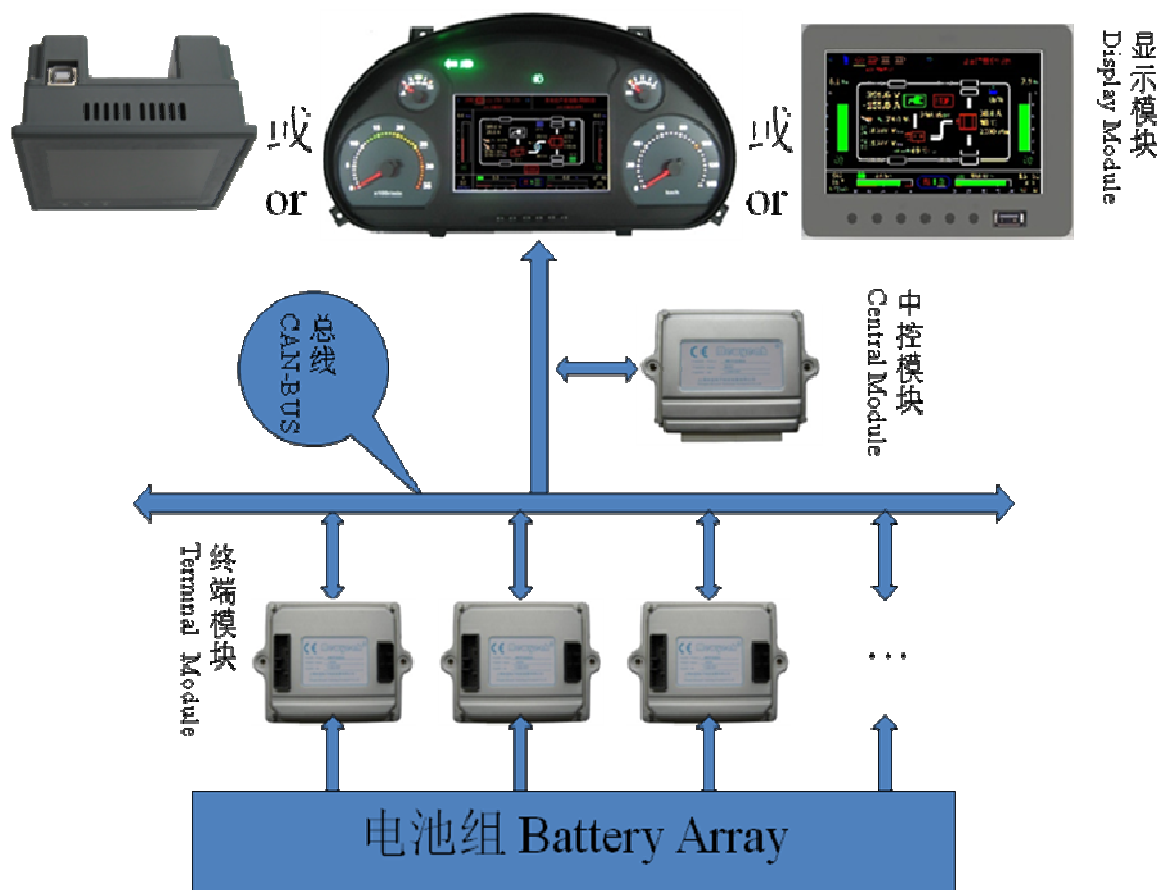
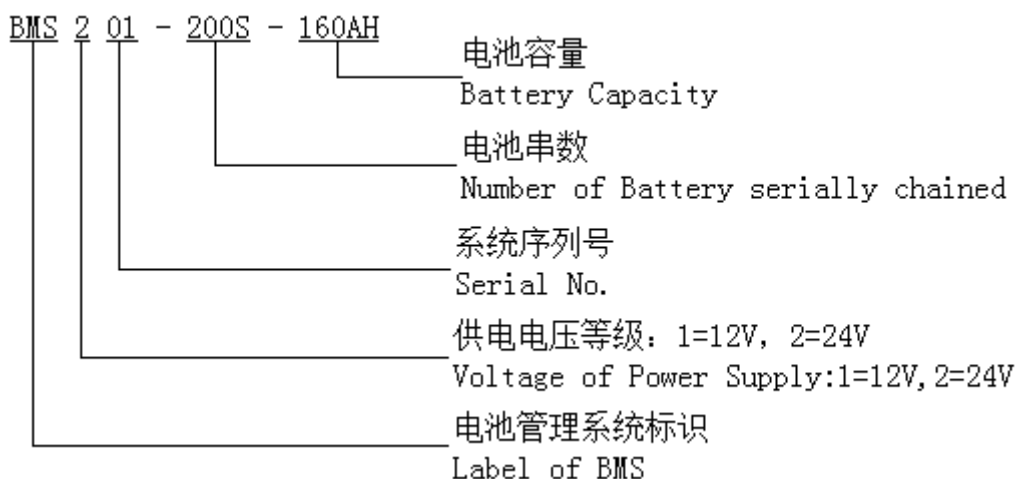


图 3-1 动力电池管理系统组成示意图

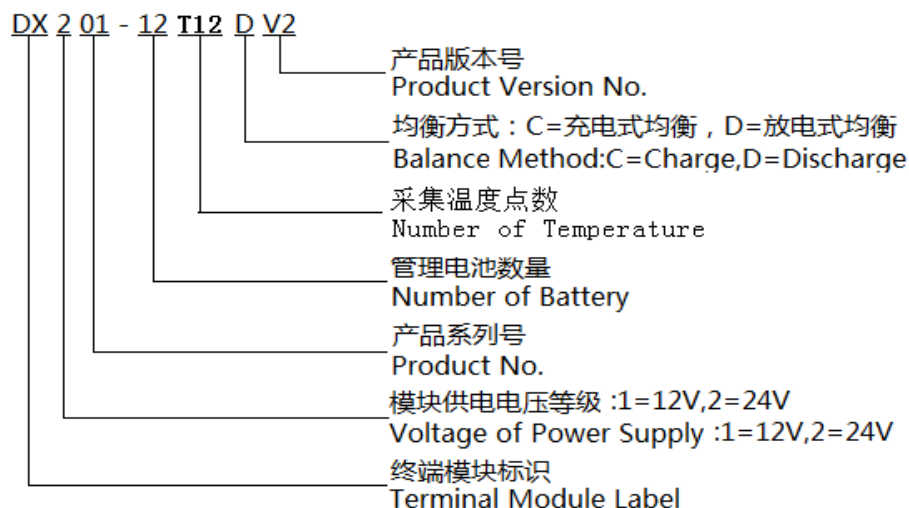
Fig.3-1 Architecture of Mewyeah BMS

4 产品命名规则 Package Information

4.1 系统命名 System Naming



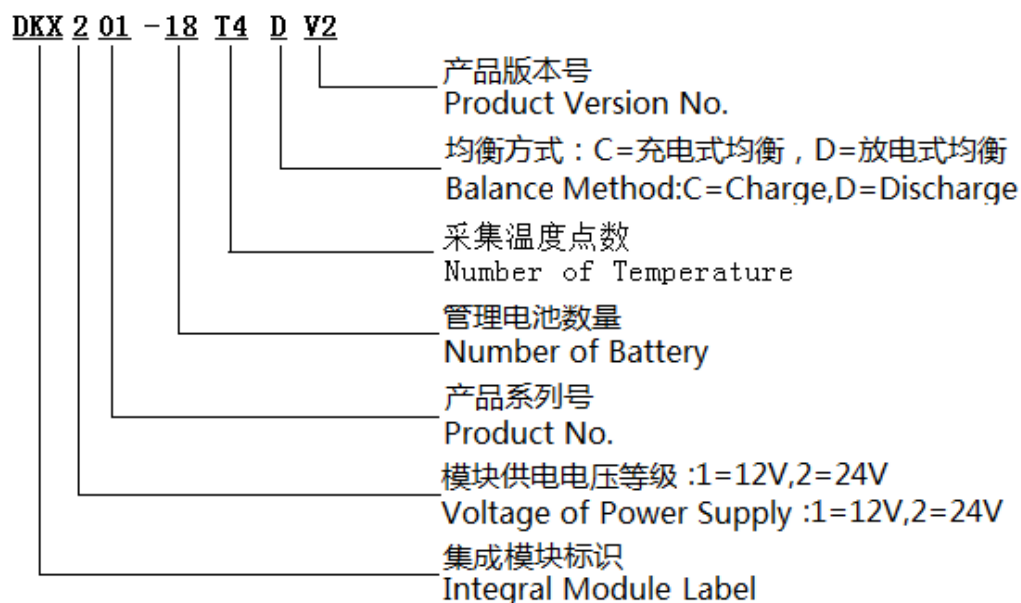
4.2 终端模块 Terminal Modules



4.3 中控模块 Central Module



4.4 集成模块 Integral Module

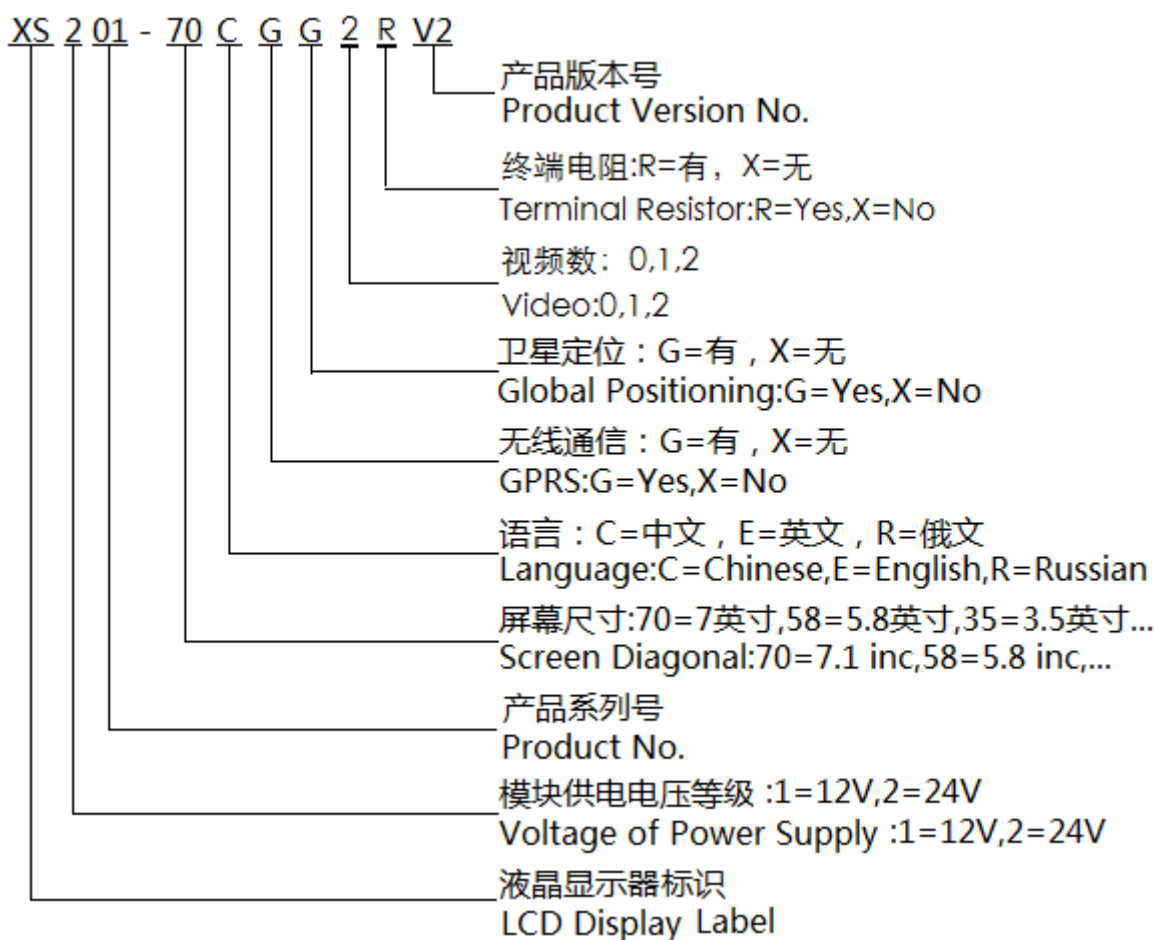


4.5 显示模块 Display Module

4.5.1 组合仪表 Dashboard



4.5.2 液晶显示器 LCD Display



5 技术参数 Parameters

5.1 终端模块 Terminal Module

表 5-1 终端模块参数 Table 5-1 Parameter of Terminal Module

型号 Module-	供电电压 Power Supply (V)	供电电流 Supply Current (mA)	电池数量 Cell Number	电池耗电 Cell consume (mA)	电压精度 Volt Precision (V)	温度精度 Temp Precision (℃)	均衡方式 Balance Mode	工作温度 Op Temp (℃)
DX101-8T8D	10~16	60	8	2	0.005	1	Discharge	-40~85
DX101-9T9D	10~16	60	9	2	0.005	1	Discharge	-40~85
DX101-10T10D	10~16	60	10	2	0.005	1	Discharge	-40~85
DX101-11T11D	10~16	60	11	2	0.005	1	Discharge	-40~85
DX101-12T12D	10~16	60	12	2	0.005	1	Discharge	-40~85
DX101-13T12D	10~16	60	13	2	0.005	1	Discharge	-40~85
DX101-14T12D	10~16	60	14	2	0.005	1	Discharge	-40~85
DX101-15T12D	10~16	60	15	2	0.005	1	Discharge	-40~85
DX101-16T12D	10~16	60	16	2	0.005	1	Discharge	-40~85
DX101-17T12D	10~16	60	17	2	0.005	1	Discharge	-40~85
DX101-18T12D	10~16	60	18	2	0.005	1	Discharge	-40~85
DX102-04T4D	10~16	40	4	2	0.005	1	Discharge	-40~85
DX102-06T6D	10~16	40	6	2	0.005	1	Discharge	-40~85
DX102-08T8D	10~16	40	8	2	0.005	1	Discharge	-40~85
DX103-04T4D	10~16	40	4	2	0.005	1	Discharge	-40~85
DX103-05T5D	10~16	40	5	2	0.005	1	Discharge	-40~85
DX103-06T6D	10~16	40	6	2	0.005	1	Discharge	-40~85
DX103-07T7D	10~16	40	7	2	0.005	1	Discharge	-40~85
DX103-08T7D	10~16	40	8	2	0.005	1	Discharge	-40~85
DX201-8T8D	20~32	60	8	2	0.005	1	Discharge	-40~85
DX201-9T9D	20~32	60	9	2	0.005	1	Discharge	-40~85
DX201-10T10D	20~32	60	10	2	0.005	1	Discharge	-40~85
DX201-11T11D	20~32	60	11	2	0.005	1	Discharge	-40~85
DX201-12T12D	20~32	60	12	2	0.005	1	Discharge	-40~85
DX201-13T12D	20~32	60	13	2	0.005	1	Discharge	-40~85
DX201-14T12D	20~32	60	14	2	0.005	1	Discharge	-40~85
DX201-15T12D	20~32	60	15	2	0.005	1	Discharge	-40~85
DX201-16T12D	20~32	60	16	2	0.005	1	Discharge	-40~85
DX201-17T12D	20~32	60	17	2	0.005	1	Discharge	-40~85
DX201-18T12D	20~32	60	18	2	0.005	1	Discharge	-40~85
DX202-04T4D	20~32	40	4	2	0.005	1	Discharge	-40~85
DX202-06T6D	20~32	40	6	2	0.005	1	Discharge	-40~85
DX202-08T8D	20~32	40	8	2	0.005	1	Discharge	-40~85
DX203-04T4D	20~32	40	4	2	0.005	1	Discharge	-40~85
DX203-05T5D	20~32	40	5	2	0.005	1	Discharge	-40~85
DX203-06T6D	20~32	40	6	2	0.005	1	Discharge	-40~85
DX203-07T7D	20~32	40	7	2	0.005	1	Discharge	-40~85
DX203-08T7D	20~32	40	8	2	0.005	1	Discharge	-40~85
DX101-8T8C	10~16	860	8	2	0.005	1	Charge	-40~85
DX101-9T9C	10~16	860	9	2	0.005	1	Charge	-40~85
DX101-10T10C	10~16	860	10	2	0.005	1	Charge	-40~85
DX101-11T11C	10~16	860	11	2	0.005	1	Charge	-40~85

DX101-12T12C	10~16	860	12	2	0.005	1	Charge	-40~85
DX101-13T12C	10~16	860	13	2	0.005	1	Charge	-40~85
DX101-14T12C	10~16	860	14	2	0.005	1	Charge	-40~85
DX101-15T12C	10~16	860	15	2	0.005	1	Charge	-40~85
DX101-16T12C	10~16	860	16	2	0.005	1	Charge	-40~85
DX101-17T12C	10~16	860	17	2	0.005	1	Charge	-40~85
DX101-18T12C	10~16	860	18	2	0.005	1	Charge	-40~85
DX102-04T4C	10~16	840	4	2	0.005	1	Charge	-40~85
DX102-06T6C	10~16	840	6	2	0.005	1	Charge	-40~85
DX102-08T8C	10~16	840	8	2	0.005	1	Charge	-40~85
DX103-04T4C	10~16	840	4	2	0.005	1	Charge	-40~85
DX103-05T5C	10~16	840	5	2	0.005	1	Charge	-40~85
DX103-06T6C	10~16	840	6	2	0.005	1	Charge	-40~85
DX103-07T7C	10~16	840	7	2	0.005	1	Charge	-40~85
DX103-08T7C	10~16	840	8	2	0.005	1	Charge	-40~85
DX201-8T8C	20~32	860	8	2	0.005	1	Charge	-40~85
DX201-9T9C	20~32	860	9	2	0.005	1	Charge	-40~85
DX201-10T10C	20~32	860	10	2	0.005	1	Charge	-40~85
DX201-11T11C	20~32	860	11	2	0.005	1	Charge	-40~85
DX201-12T12C	20~32	860	12	2	0.005	1	Charge	-40~85
DX201-13T12C	20~32	860	13	2	0.005	1	Charge	-40~85
DX201-14T12C	20~32	860	14	2	0.005	1	Charge	-40~85
DX201-15T12C	20~32	860	15	2	0.005	1	Charge	-40~85
DX201-16T12C	20~32	860	16	2	0.005	1	Charge	-40~85
DX201-17T12C	20~32	860	17	2	0.005	1	Charge	-40~85
DX201-18T12C	20~32	860	18	2	0.005	1	Charge	-40~85
DX202-04T4C	20~32	840	4	2	0.005	1	Charge	-40~85
DX202-06T6C	20~32	840	6	2	0.005	1	Charge	-40~85
DX202-08T8C	20~32	840	8	2	0.005	1	Charge	-40~85
DX203-04T4C	20~32	840	4	2	0.005	1	Charge	-40~85
DX203-05T5C	20~32	840	5	2	0.005	1	Charge	-40~85
DX203-06T6C	20~32	840	6	2	0.005	1	Charge	-40~85
DX203-07T7C	20~32	840	7	2	0.005	1	Charge	-40~85
DX203-08T7C	20~32	840	8	2	0.005	1	Charge	-40~85

5.2 中控模块 Central Module

表 5-2 中控模块参数 Table 5-1 Parameters of Central Module

型号 Module	供电电压 Power Supply (V)	供电电流 Supply Current (mA)	总电压精度 Volt Precision (%)	电流精度 Cur Precision (%)	绝缘电阻精度 Resistor Precision (%)	SOC 精度 SOC Precision (%)	高压等级 High Volt (V)	工作温度 Op Temp (℃)
DK101	10~16	100	0.2	1	20	2	800	-40~85
DK102	10~16	100	0.2	1	20	2	800	-40~85
DK201	20~32	80	0.2	1	20	2	800	-40~85
DK202	20~32	80	0.2	1	20	2	800	-40~85

5.3 集成模块

表 5-3 集成模块参数 Table 5-1 Parameters of Integral Module

型号 Module	供电电压 Power Supply (V)	供电电流 Supply Current (mA)	电池数量 Cell Number	电池耗电 Cell consume (mA)	电压精度 Volt Precision (V)	温度精度 Temp Precision (℃)	电流精度 Current Precision (%)	SOC 精度 SOC Precision (%)	均衡方式 Balance Mode	工作温度 Operating Temp (℃)
DKX101-4T4D	10~16	100	4	2	0.005	1	1	5	Discharge	-40~85
DKX101-6T4D	10~16	100	6	2	0.005	1	1	5	Discharge	-40~85
DKX101-7T4D	10~16	100	7	2	0.005	1	1	5	Discharge	-40~85
DKX101-8T4D	10~16	100	8	2	0.005	1	1	5	Discharge	-40~85
DKX101-10T4D	10~16	100	10	2	0.005	1	1	5	Discharge	-40~85
DKX101-11T4D	10~16	100	11	2	0.005	1	1	5	Discharge	-40~85
DKX101-12T4D	10~16	100	12	2	0.005	1	1	5	Discharge	-40~85
DKX101-14T4D	10~16	100	14	2	0.005	1	1	5	Discharge	-40~85
DKX101-15T4D	10~16	100	15	2	0.005	1	1	5	Discharge	-40~85
DKX101-16T4D	10~16	100	16	2	0.005	1	1	5	Discharge	-40~85
DKX101-18T4D	10~16	100	18	2	0.005	1	1	5	Discharge	-40~85
DKX201-4T4D	20~32	100	4	2	0.005	1	1	5	Discharge	-40~85
DKX201-6T4D	20~32	100	6	2	0.005	1	1	5	Discharge	-40~85
DKX201-7T4D	20~32	100	7	2	0.005	1	1	5	Discharge	-40~85
DKX201-8T4D	20~32	100	8	2	0.005	1	1	5	Discharge	-40~85
DKX201-10T4D	20~32	100	10	2	0.005	1	1	5	Discharge	-40~85
DKX201-11T4D	20~32	100	11	2	0.005	1	1	5	Discharge	-40~85
DKX201-12T4D	20~32	100	12	2	0.005	1	1	5	Discharge	-40~85
DKX201-14T4D	20~32	100	14	2	0.005	1	1	5	Discharge	-40~85
DKX201-15T4D	20~32	100	15	2	0.005	1	1	5	Discharge	-40~85
DKX201-16T4D	20~32	100	16	2	0.005	1	1	5	Discharge	-40~85
DKX201-18T4D	20~32	100	18	2	0.005	1	1	5	Discharge	-40~85
DKX101-4T4C	10~16	900	4	2	0.005	1	1	5	charge	-40~85
DKX101-6T4C	10~16	900	6	2	0.005	1	1	5	charge	-40~85
DKX101-7T4C	10~16	900	7	2	0.005	1	1	5	charge	-40~85
DKX101-8T4C	10~16	900	8	2	0.005	1	1	5	charge	-40~85
DKX101-10T4C	10~16	900	10	2	0.005	1	1	5	charge	-40~85
DKX101-11T4C	10~16	900	11	2	0.005	1	1	5	charge	-40~85
DKX101-12T4C	10~16	900	12	2	0.005	1	1	5	charge	-40~85
DKX101-14T4C	10~16	900	14	2	0.005	1	1	5	charge	-40~85
DKX101-15T4C	10~16	900	15	2	0.005	1	1	5	charge	-40~85
DKX101-16T4C	10~16	900	16	2	0.005	1	1	5	charge	-40~85
DKX101-18T4	10~16	900	18	2	0.005	1	1	5	charge	-40~85
DKX201-4T4C	20~32	900	4	2	0.005	1	1	5	charge	-40~85
DKX201-6T4C	20~32	900	6	2	0.005	1	1	5	charge	-40~85
DKX201-7T4C	20~32	900	7	2	0.005	1	1	5	charge	-40~85
DKX201-8T4C	20~32	900	8	2	0.005	1	1	5	charge	-40~85
DKX201-10T4C	20~32	900	10	2	0.005	1	1	5	charge	-40~85
DKX201-11T4C	20~32	900	11	2	0.005	1	1	5	charge	-40~85

DKX201-12T4C	20~32	900	12	2	0.005	1	1	5	charge	-40~85
DKX201-14T4C	20~32	900	14	2	0.005	1	1	5	charge	-40~85
DKX201-15T4C	20~32	900	15	2	0.005	1	1	5	charge	-40~85
DKX201-16T4C	20~32	900	16	2	0.005	1	1	5	charge	-40~85
DKX201-18T4C	20~32	900	18	2	0.005	1	1	5	charge	-40~85

5.4 显示模块 Display Module

表 5-4-1 组合仪表参数 Parameters Of Dashboard

型号 Module	供电电压 Power Supply (V)	供电电流 Supply Current (mA)	语言 Language	采集信号			指针表 meter	报警 指示 Alarm LED	报警 声音 Alarm Voice	记录数据 Record (月) (Month)	工作温度 Operating Temp (℃)
				模拟 Ana	开关 Dig	脉冲 Pulse					
ZB186-C	10~16	100	Chinese	8	42	2	4	20	Chinese	1	-20~85
ZB186-E	10~16	100	English	8	42	2	4	20	Music	1	-20~85
ZB186-R	10~16	100	Russian	8	42	2	4	20	Music	1	-20~85
ZB286-C	20~32	100	Chinese	8	42	2	4	20	Chinese	1	-20~85
ZB286-E	20~32	100	English	8	42	2	4	20	Music	1	-20~85
ZB286-R	20~32	100	Russian	8	42	2	4	20	Music	1	-20~85

表 5-4-2 显示模块参数 Parameters Of Display Module

型号 Module	供电电压 Power Supply (V)	供电电流 Supply Current (mA)	语言 Language	尺寸 Screen Diagonal (Inch)	采集信号			报警 声音 Alarm Voice	卫星 定位 GPS	无线 通信 GPRS	记录数据 Record (月) (Month)	工作温度 Operating Temp (℃)
					模拟 Ana	开关 Dig	脉冲 Pulse					
XS 101-70CXX	10~16	80	Chinese	7.0	2	4	2	Chinese	No	No	1	-20~85
XS 101-70EXX	10~16	80	English	7.0	2	4	2	Music	No	No	1	-20~85
XS 101-70RXX	10~16	80	Russian	7.0	2	4	2	Music	No	No	1	-20~85
XS 101-70CGG	10~16	100	Chinese	7.0	2	4	2	Chinese	Yes	Yes	1	-20~85
XS101-35C	10~16	100	Chinese	3.5	0	0	0	Chinese	No	No	0	-10~70
XS 101-35E	10~16	100	Chinese	3.5	0	0	0	Chinese	No	No	0	-10~70
XS 201-70CXX	20~32	80	Chinese	7.0	2	4	2	Chinese	No	No	1	-20~85
XS 201-70EXX	20~32	80	English	7.0	2	4	2	Music	No	No	1	-20~85
XS 201-70RXX	20~32	80	Russian	7.0	2	4	2	Music	No	No	1	-20~85
XS 201-70CGG	20~32	100	Chinese	7.0	2	4	2	Chinese	Yes	Yes	1	-20~85
XS 201-35C	20~32	100	Chinese	3.5	0	0	0	Chinese	No	No	0	-10~70
XS 201-35E	20~32	100	Chinese	3.5	0	0	0	Chinese	No	No	0	-10~70

6 安装 Installing

6.1 终端模块 Terminal Module

6.1.1 DX201, DX101

使用 2 个 M6 六角螺栓固定模块，注意模块为侧面引线，引线处要留足够空间。

Use 2 pieces of hexagonal bolt to fix the module, and make sure reserve enough space for side wiring.



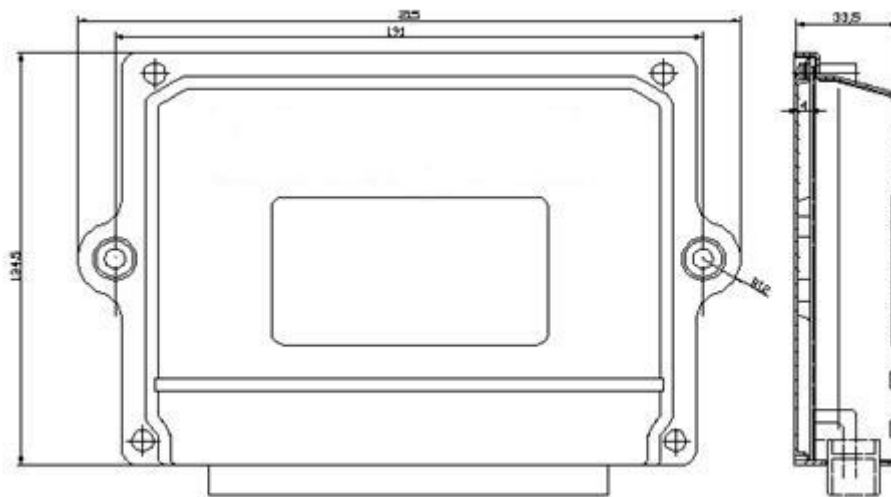


图 6-1-1 DX201,DX101 安装尺寸/Fig.6-1-1 Installing Dimension of DX201 and DX101

6.1.2 DX202,DX102

使用 2 个 M6 六角螺栓固定模块，注意模块为正面引线，引线处要留足够空间。

Use 2 pieces of hexagonal bolt to fix the module, and make sure reserve enough space for face wiring.

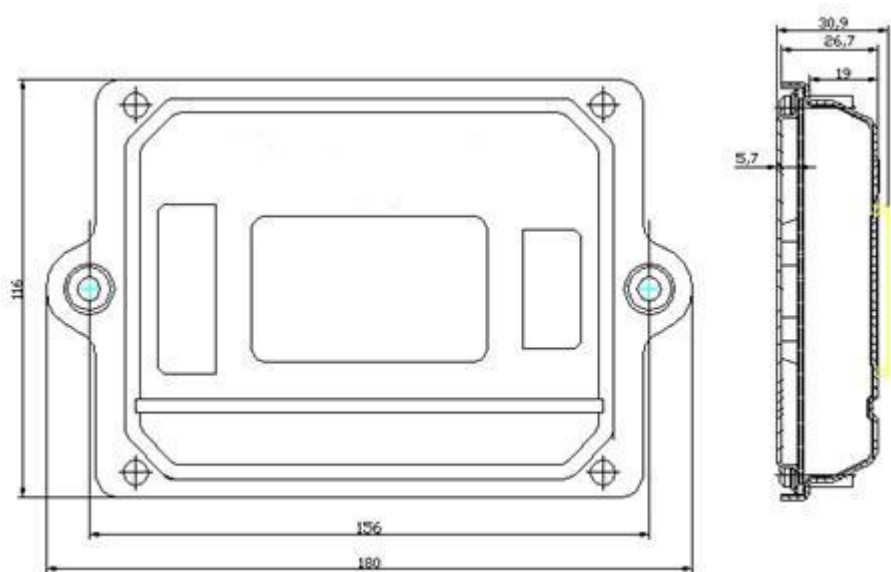


图 6-1-2 DX202,DX102 安装尺寸/Fig.6-1-2 Installing Dimension of DX202 and DX102

6.1.1 DX203, DX103

使用 2 个 M6 六角螺栓固定模块，注意模块为侧面引线，引线处要留足够空间。

Use 2 pieces of hexagonal bolt to fix the module, and make sure reserve enough space for side wiring.



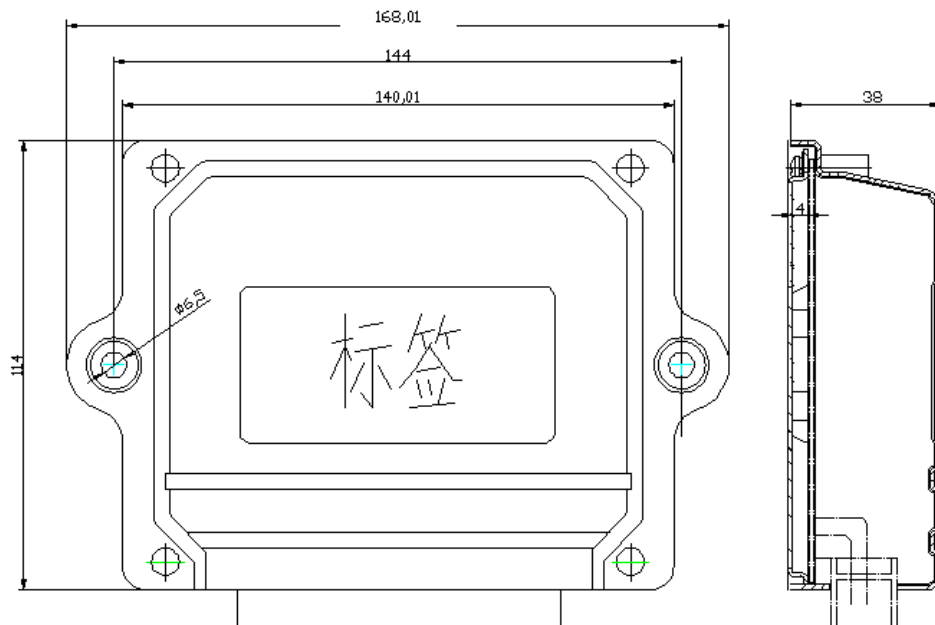


图 6-1-3 DX203,DX103 安装尺寸/ Fig.6-1-3 Installing Dimension of DX203 and DX103

6.2 中控模块 Central Module

6.2.1 DK201, DK101

使用 2 个 M6 六角螺栓固定模块，注意模块为侧面引线，引线处要留足够空间。

Use 2 pieces of hexagonal bolt to fix the module, and make sure reserve enough space for side wiring.

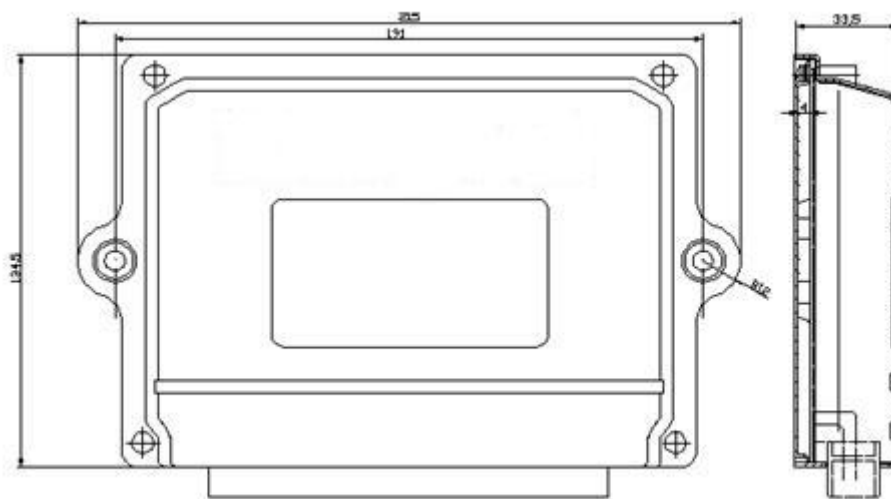


图 6-2-1 DK201,DK101 安装尺寸/ Fig.6-2-1 Installing Dimension of DK201 and DK101

6.2.1 DK202, DK102

使用 2 个 M6 六角螺栓固定模块，注意模块为侧面引线，引线处要留足够空间。

Use 2 pieces of hexagonal bolt to fix the module, and make sure reserve



enough space for side wiring.

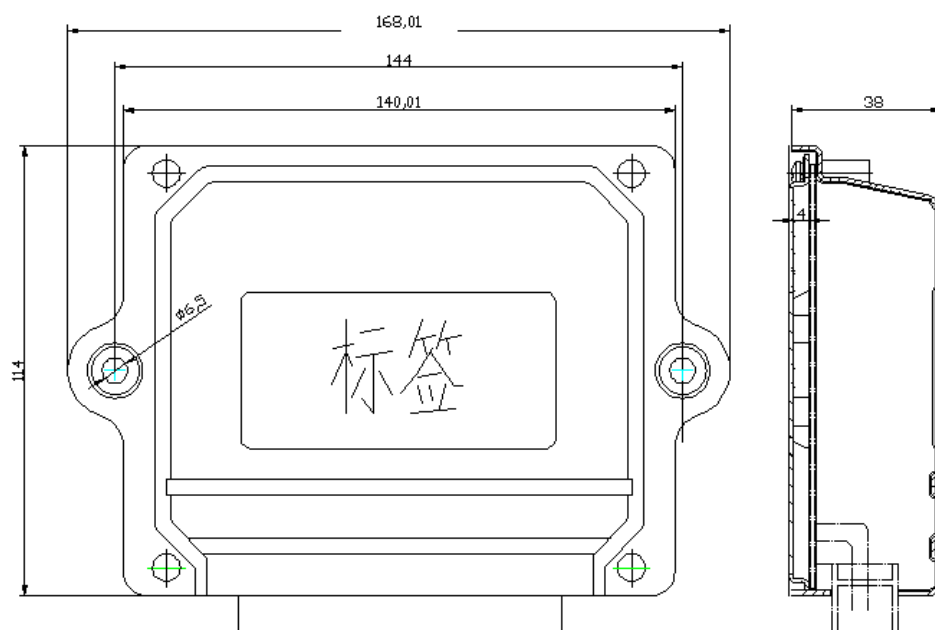


图 6-2-2 DK202,DK102 安装尺寸/Fig.6-2-2 Installing Dimension of DK202 and DK102

6.3 集成模块 Integral Module

集成模块 DKX201 的壳体和终端模块 DX201 一样，所以安装方法参见 6.1.1。

The case of DKX201 is the same with that of DX201, so it is with its installing.

6.4 显示模块

6.4.1 仪表

用 4 个 M6 螺钉固定仪表。

Use 4 pieces of M6 self-threading screw to install the dashboard.

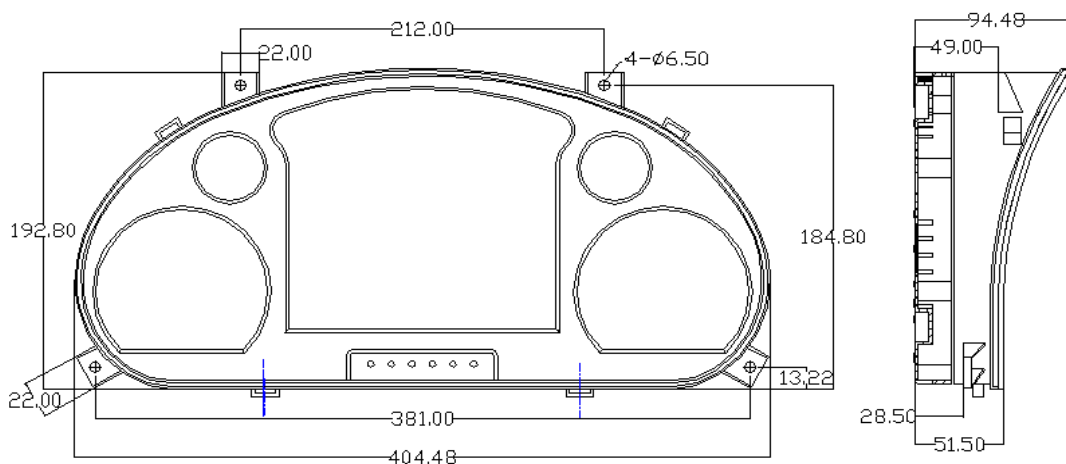


图 6-4-1 仪表安装尺寸/Fig.6-4-1 Installing Dimension of Dashboard

6.4.2 液晶显示器

6.4.2.1 XS201-70, XS101-70

首先按 183.5X132.5mm 开好口，然后用附带的 4 个紧固件固定好液晶现



实器。

Make a 183.5X132.5 mm opening, then install the LCD Module the 4 accessory gadget.

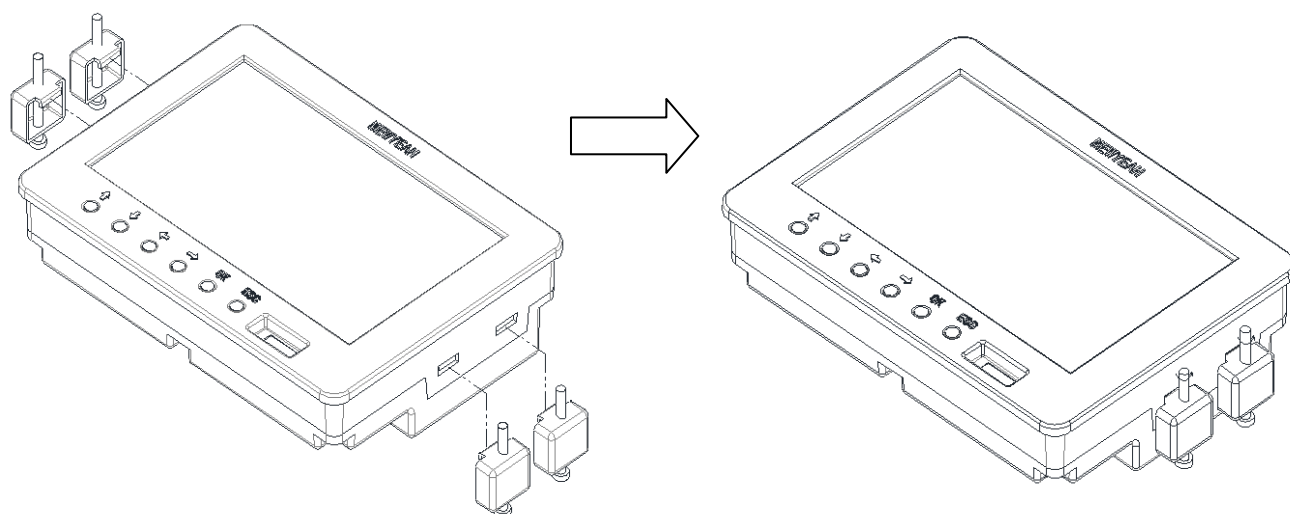


图 6-4-2 XS201,XS101 安装示意图/Fig.6-4-2 Installing Illustration of XS201 and XS101

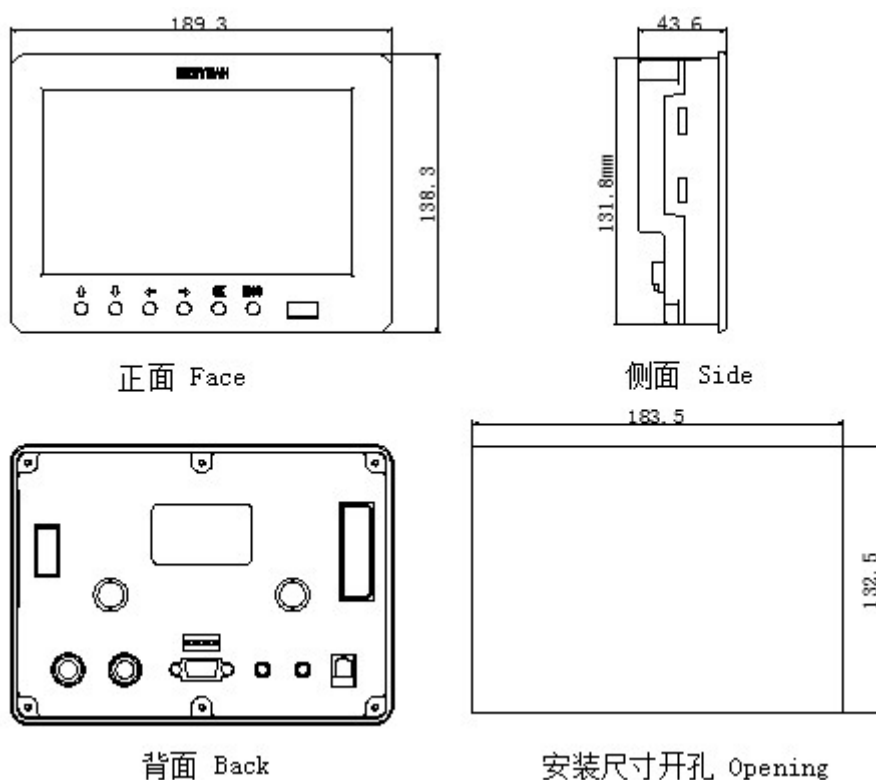


图 6-4-3 XS201,XS101 安装尺寸/Fig.6-4-3 Installing Dimension of XS201 and XS101

6.4.2.2 XS201-35,XS101-35

参照 6.4.2.1 节介绍，首先按 131X79mm 开好口，然后用附带的 4 个紧固件固定好液晶现实器。

Refer to chapter 6.4.2.1, Make a 131X79 opening, then install the LCD Module the 4 accessory gadget.



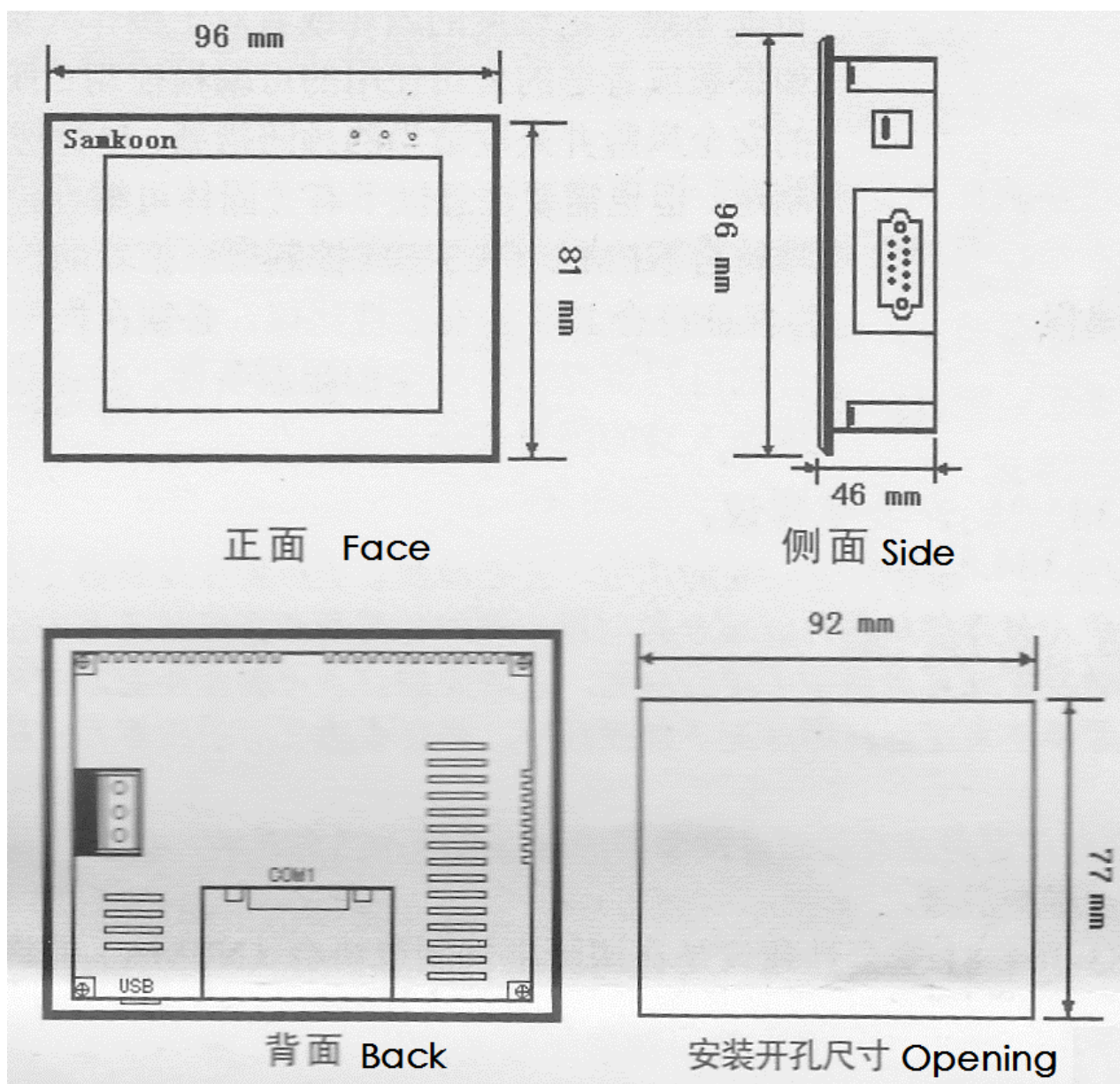


图 6-4-3 XS201,XS101 安装尺寸/ Fig.6-4-3 Installing Dimension of XS201 and XS101

7 配线(Wiring)

特别关注!!

在模块负责管理的电池没完全正确地接好之前，不得插上电压采集接插件。在需要更换电池之前，也必须先拔出电压采集接插件。每次插入电压采集接插件之前一定要仔细检查一遍，确保本模块负责管理的电池正确连好，否则有可能永久损坏模块。

Attention!!

Don't plug in connector which samples the cell voltage before all cells, that are managed by this module, have been correctly linked. Unplug this connector before making any cell replacement. Every time when you plug in this connector, double-check the connection to make sure all cells, which have been managed by this module, have been correctly connected or permanent damage may occur.

7.1 线束命名规范 Wire Naming

例 1, X1J1-VnLbMd, X1 表明终端模块线束 1 型, J1 表示与模块的连接器 J1 相连, Vn 表示采集电池个数为 n 个, Lb 表明线束长度为 b 厘米, Md 表明接线鼻直径为 d 毫米。

例 2, K1J1-LbMd, K1 表明中控模块线束 1 型, J1 表示与模块的连接器 J1 相连, Lb 表明线束长度为 b 厘米, Md 表明接线鼻直径为 d 毫米。

例 3, KX1J1-VnLbMd, KX1 表明集成模块线束 1 型, J1 表示与模块的连接器 J1 相连, Vn 表示采集电池个数为 n 个, Lb 表明线束长度为 b 厘米, Md 表明接线鼻直径为 d 毫米。

例 4, KN1-Lb, KN1 表示中控的负控输出控制 1, Lb 表明线束长度为 b 厘米。

例 5, KP1-Lb, KP1 表示中控的正控输出控制 1, Lb 表明线束长度为 b 厘米。

例 6, CAN-Lb, CAN 通信线, Lb 表明线束长度为 b 厘米。

例 7, XT-Lb, XT1 显示通信线, Lb 表明线束长度为 b 厘米。

Example 1, X1J1-VnLbMd, X1 represents Terminal Module Wire 1, J1 means that this wire links to connector 1, Vn shows that n batteries are associated with this wire. Lb means length of wire is b centimeters, Md shows that the diameter of wire nose is d millimeters.

Example 2, K1J1-LbMd, K1 represents Central Module Wire 1, J1 means that this wire links to connector 1, Lb means length of wire is b centimeters, Md shows that the diameter of wire nose is d millimeters.

Example 3, KX1J1-VnLbMd, KX1 represents Integral Module Wire 1, J1 means that this wire links to connector 1, Vn shows that n batteries are associated with this wire. Lb means length of wire is b centimeters, Md shows that the diameter of wire nose is d millimeters.

Example 4, KN1-LbMd, KN1 represents Negative Control 1 of Central Module, Lb means length of wire is b centimeters, Md shows that the diameter of wire nose is d millimeters.

Example 5, KP1-LbMd, KN1 represents Positive Control 1 of Central Module, Lb means length of wire is b centimeters, Md shows that the diameter of wire nose is d millimeters.

Example 6, CAN-Lb, CAN represent CAN Wire, Lb means length of wire is b centimeters.

Example 7, XT-Lb, XT represent Communication Wire with Display Module, Lb means length of wire is b centimeters.

7.2 供电 Power Supply

7.2.1 车载供电 Power Supply For Vehicle System

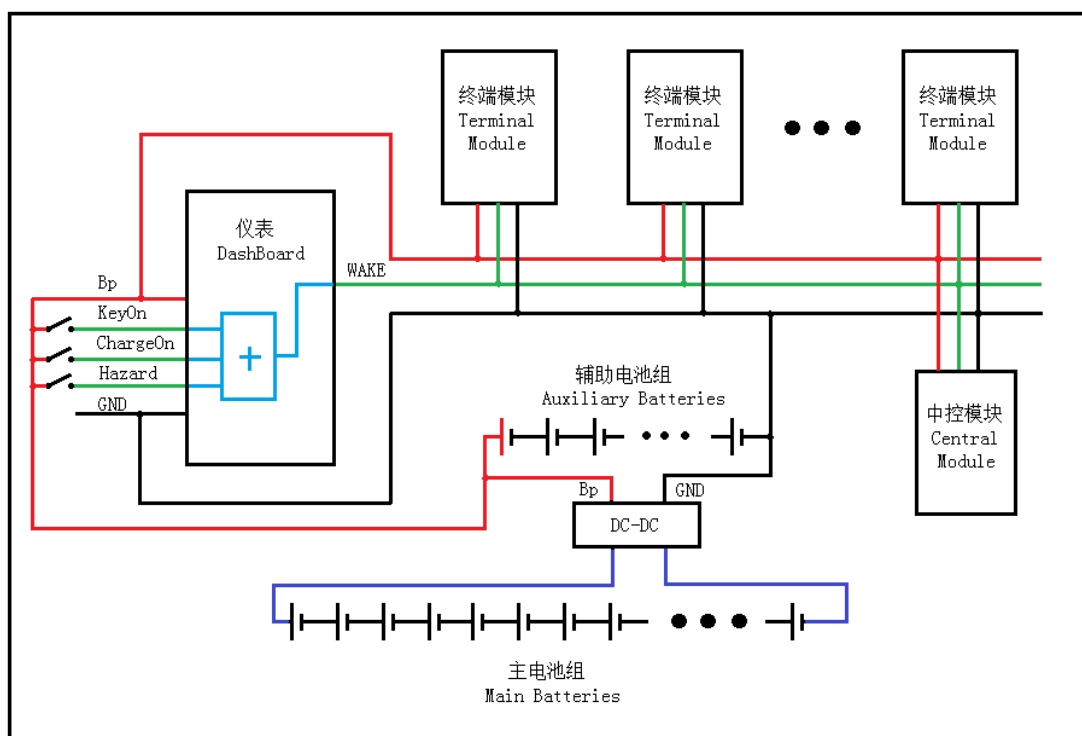


图 7-2-1 车载供电 Power Supply For Vehicle System

7.2.2 非车载供电 Power Supply For Non-Vehicle System

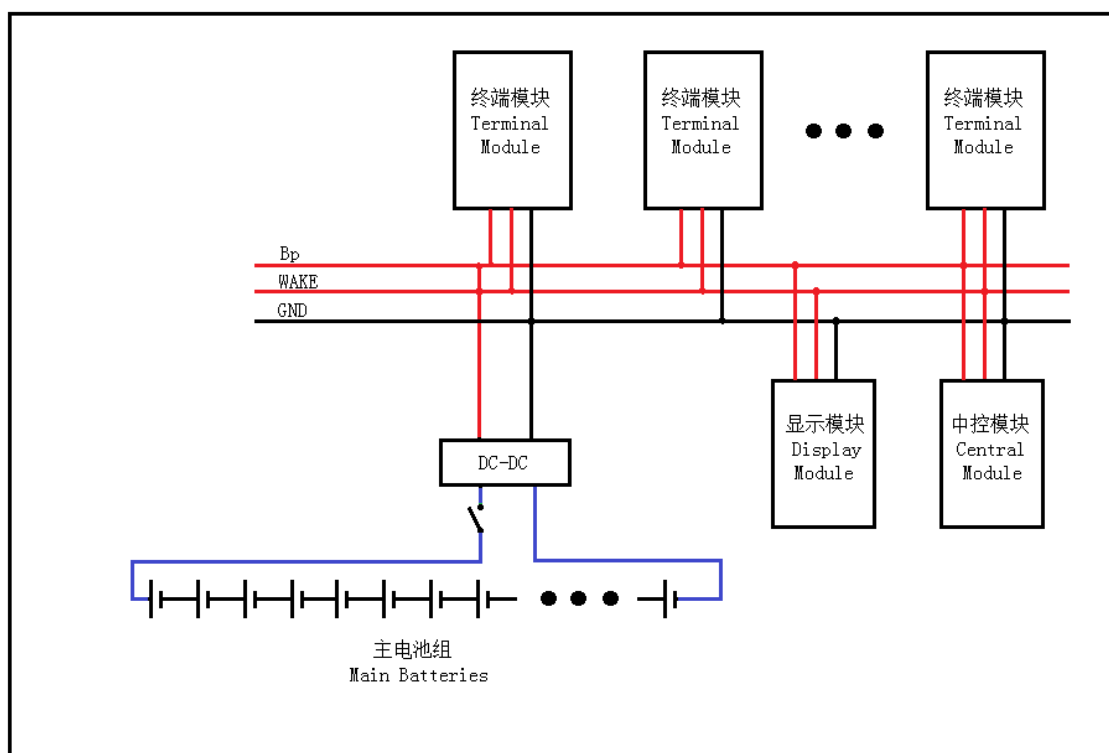


图 7-2-2 非车载供电 Power Supply For Non-Vehicle System

7.3 终端模块 Terminal Module

终端模块实际管理的电池数可能少于该模块所能管理的模块数，比如 DX201-18T18 最多能管理 18 个电池，但实际使用时可能只管理了 16 个电池数。接线上要求必须从高 V18 向下接到 V2，V1、V0 空着。

In application, the real number of batteries that a Terminal Module manages may be less than what the

module is capable of managing. For example, DX201-18T4 is capable of managing 18 batteries. In real application, only 16 batteries may be managed by it. Wiring from V18 down to V2, let V0,V1 unconnected.

敬请关注!!

在模块负责管理的电池没完全正确地接好之前，不得插上电压采集接插件 J1。在需要更换电池之前，也必须先拔出电压采集接插件 J1。每次插入 J1 之前一定要仔细检查一遍，确保本模块负责管理的电池正确连好，否则有可能永久损坏模块。

Attention!!

Don' t plug in J1 which samples the cell voltage before all cells, that are managed by this module, have been correctly linked. Unplug J1 before making any cell replacement. Every time when you plug in V1, double-check the connection to make sure all cells, which have been managed by this module, have been correctly connected or permanent damage may occur.

7.3.1 DX201, DX101

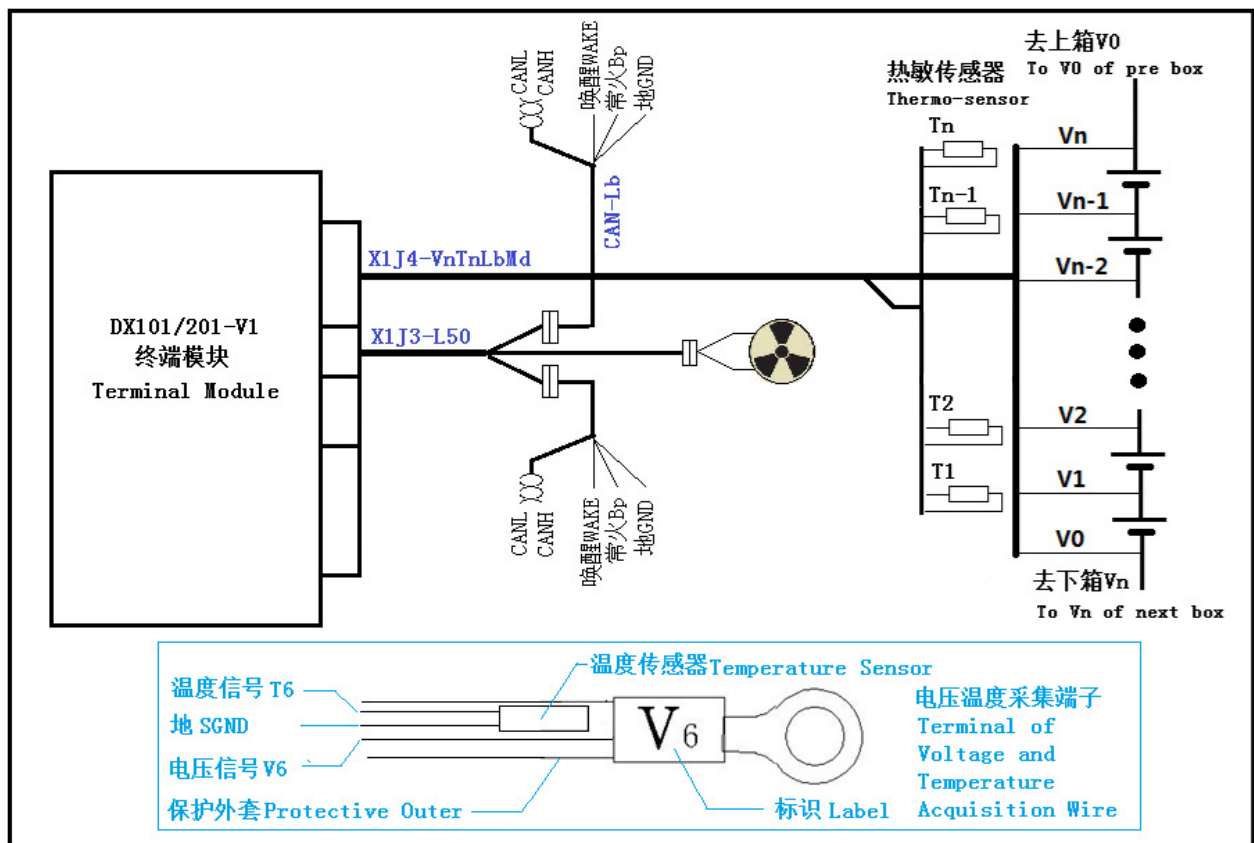


图 7-3-1 终端模块 DX201-V1 接线图

Fig 7-3-1 Wiring of Terminal Module DX201-V1

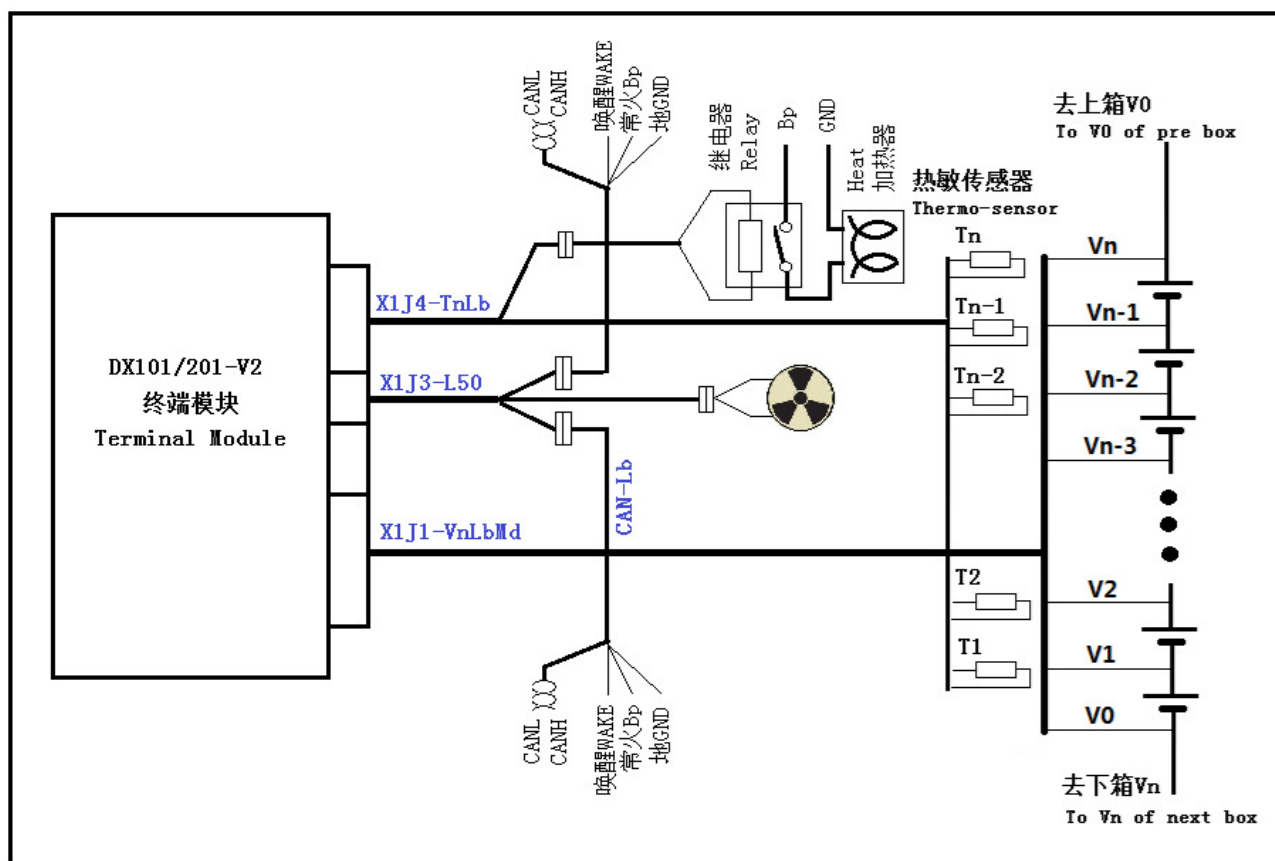


图 7-3-2 终端模块 DX201-V2 接线图

Fig 7-3-2 Wiring of Terminal Module DX201-V2

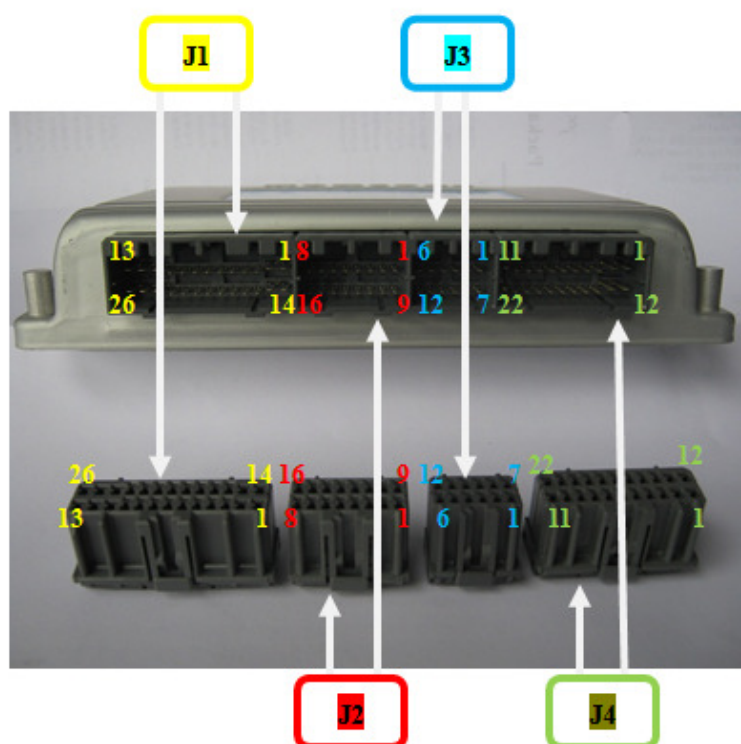


图 7-3-3 终端模块 DX201/DX101 接插件图

Fig7-3-3 Connectors of Terminal Module DX201/DX101

表 7-2-1 DX201-V1 接口定义/Table 7-1-1 Connector Definition of DX201-V1

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	V0	粗 big	J1-21	SGND	细 small	J2-15		细 small	J4-7		细 small
J1-2	V1	粗 big	J1-22	T5	细 small	J2-16		细 small	J4-8		细 small
J1-3	V2	细 small	J1-23	T6	细 small	J3-1	Bp	细 small	J4-9		细 small
J1-4		细 small	J1-24	SGND	粗 big	J3-2	WAKE-UP	细 small	J4-10		细 small
J1-5		细 small	J1-25	T7	粗 big	J3-3	CAN_H	细 small	J4-11		粗 big
J1-6	V3	细 small	J1-26	T8	粗 big	J3-4	CAN_L	细 small	J4-12		粗 big
J1-7	V4	细 small	J2-1	V9	细 small	J3-5	Fan	细 small	J4-13		粗 big
J1-8		细 small	J2-2	V10	细 small	J3-6	GND	细 small	J4-14		细 small
J1-9	V5	细 small	J2-3		细 small	J3-7	GND	细 small	J4-15		细 small
J1-10	V6	细 small	J2-4	V11	细 small	J3-8	WAKE-UP	细 small	J4-16		细 small
J1-11		粗 big	J2-5	V12	细 small	J3-9	CAN_H	细 small	J4-17		细 small
J1-12	V7	粗 big	J2-6		细 small	J3-10	CAN_L	细 small	J4-18		细 small
J1-13	V8	粗 big	J2-7		细 small	J3-11	GND	细 small	J4-19		细 small
J1-14	SGND	粗 big	J2-8	SGND	细 small	J3-12	Bp	细 small	J4-20		细 small
J1-15	T1	粗 big	J2-9	T9	细 small	J4-1		粗 big	J4-21		细 small
J1-16	T2	细 small	J2-10	T10	细 small	J4-2		粗 big	J4-22		粗 big
J1-17	GND	细 small	J2-11	GND	细 small	J4-3		细 small			
J1-18	GND	细 small	J2-12	T11	细 small	J4-4		细 small			
J1-19	T3	细 small	J2-13	T12	细 small	J4-5		细 small			
J1-20	T4	细 small	J2-14		细 small	J4-6		细 small			

AMP 接插件料号: (1)J1:174516-6 (2)J2:174514-6 (3)J3:174913-6 (4)J4:174515-6

表 7-1-2 DX201-V2 接口定义/Table 7-1-3 Connector Definition of DX201-V2

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	V0	粗 big	J1-21	V15	细 small	J2-15		细 small	J4-7	T7	细 small
J1-2	V2	粗 big	J1-22	V17	细 small	J2-16		细 small	J4-8	T8	细 small
J1-3	V4	细 small	J1-23		细 small	J3-1	Bp	细 small	J4-9	T9	细 small
J1-4	V6	细 small	J1-24		粗 big	J3-2	WAKE-UP	细 small	J4-10	T10	细 small
J1-5	V8	细 small	J1-25		粗 big	J3-3	CAN_H	细 small	J4-11	N2	粗 big
J1-6	V10	细 small	J1-26		粗 big	J3-4	CAN_L	细 small	J4-12	T11	粗 big
J1-7	V12	细 small	J2-1		细 small	J3-5	N1	细 small	J4-13	SGND	粗 big
J1-8	V14	细 small	J2-2		细 small	J3-6	GND	细 small	J4-14	SGND	细 small
J1-9	V16	细 small	J2-3		细 small	J3-7	GND	细 small	J4-15	SGND	细 small
J1-10	V18	细 small	J2-4		细 small	J3-8	WAKE-UP	细 small	J4-16	SGND	细 small
J1-11		粗 big	J2-5		细 small	J3-9	CAN_H	细 small	J4-17	T12	细 small
J1-12		粗 big	J2-6		细 small	J3-10	CAN_L	细 small	J4-18	SGND	细 small
J1-13		粗 big	J2-7		细 small	J3-11	GND	细 small	J4-19	SGND	细 small
J1-14	V1	粗 big	J2-8		细 small	J3-12	Bp	细 small	J4-20		细 small
J1-15	V3	粗 big	J2-9		细 small	J4-1	T1	粗 big	J4-21		细 small
J1-16	V5	细 small	J2-10		细 small	J4-2	T2	粗 big	J4-22	BPO	粗 big
J1-17	V7	细 small	J2-11		细 small	J4-3	T3	细 small			
J1-18	V9	细 small	J2-12		细 small	J4-4	T4	细 small			

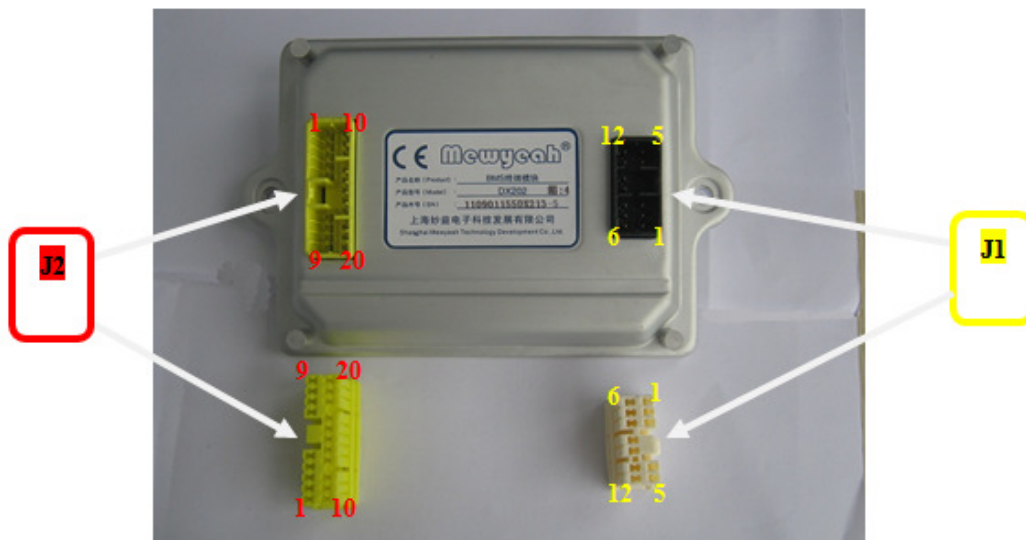


图 7-2-4 终端模块 DX202/DX102 接插件图

Fig7-1-4 Connectors of Terminal Module DX202/DX102

表 7-2 DX202 接口定义/Table 7-2 Connector Definition of DX202

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	Bp	粗 big	J1-9		粗 big	J2-5	V4	粗 big	J2-13	SGND	粗 big
J1-2	CAN_H	粗 big	J1-10		粗 big	J2-6	V3	粗 big	J2-14	T5	粗 big
J1-3	CAN_L	粗 big	J1-11		粗 big	J2-7	V2	粗 big	J2-15	T4	粗 big
J1-4	KEY ON	粗 big	J1-12		粗 big	J2-8	V1	粗 big	J2-16	T3	粗 big
J1-5	GND	粗 big	J2-1	V8	粗 big	J2-9	V0	粗 big	J2-17	SGND	粗 big
J1-6	Fan	粗 big	J2-2	V7	粗 big	J2-10	T8	粗 big	J2-18	T2	粗 big
J1-7	GN	粗 big	J2-3	V6	粗 big	J2-11	T7	粗 big	J2-19	T1	粗 big
J1-8	Bpo	粗 big	J2-4	V5	粗 big	J2-12	T6	粗 big	J2-20	SGND	粗 big

AMP 接插件料号: (1) J1:368542-1 (2) J2:174952-7

7.2.3 DX203-8, DX103-8

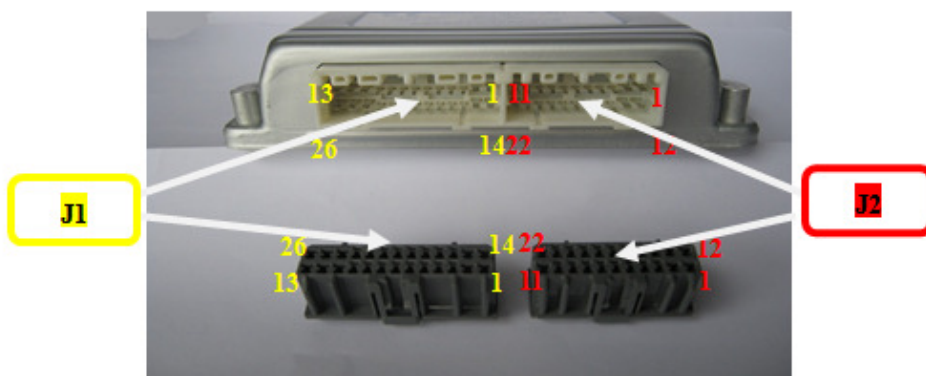


图 7-1-5 终端模块 DX203/DX103 接插件图

Fig7-1-5 Connectors of Terminal Module DX203/DK103

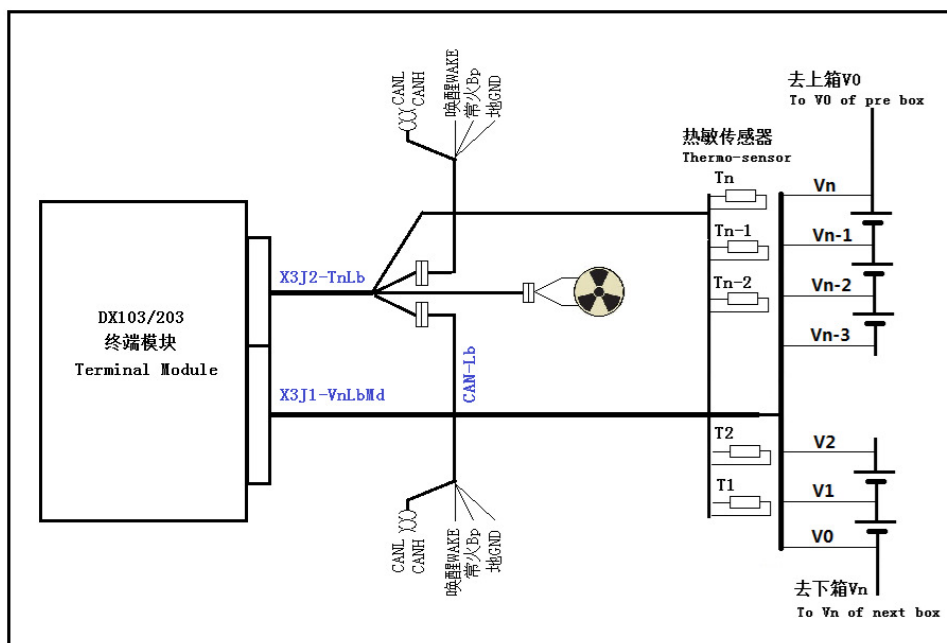


图 7-2-6 终端模块 DX103/203 接线图

Fig 7-2-6 Wiring of Terminal Module DX103/203

表 7-1-4 DX203-8T7 接口定义/**Table 7-1-4 Connector Definition of DX203-8T7**

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1		粗 big	J1-13		粗 big	J1-25		粗 big	J2-11	N1	粗 big
J1-2		粗 big	J1-14		粗 big	J1-26		粗 big	J2-12		粗 big
J1-3		细 small	J1-15		粗 big	J2-1	T1	粗 big	J2-13	SGND	粗 big
J1-4		细 small	J1-16		细 small	J2-2	T2	粗 big	J2-14	SGND	细 small
J1-5		细 small	J1-17		细 small	J2-3	T3	细 small	J2-15	SGND	细 small
J1-6		细 small	J1-18		细 small	J2-4	T4	细 small	J2-16	SGND	细 small
J1-7	V0	细 small	J1-19		细 small	J2-5	T5	细 small	J2-17		细 small
J1-8	V2	细 small	J1-20		细 small	J2-6	T6	细 small	J2-18	SGND	细 small
J1-9	V4	细 small	J1-21	V1	细 small	J2-7	T7	细 small	J2-19	SGND	细 small
J1-10	V6	细 small	J1-22	V3	细 small	J2-8	BP	细 small	J2-20	GND	细 small
J1-11	V8	粗 big	J1-23	V5	细 small	J2-9	WAKE-UP	细 small	J2-21	CANL	细 small
J1-12		粗 big	J1-24	V7	粗 big	J2-10	BPO	细 small	J2-22	CANH	粗 big

AMP 接插件料号: (1)J1174516-6 (2) 174515-6

7.3 中控模块 Central Module

7.3.2 DK201

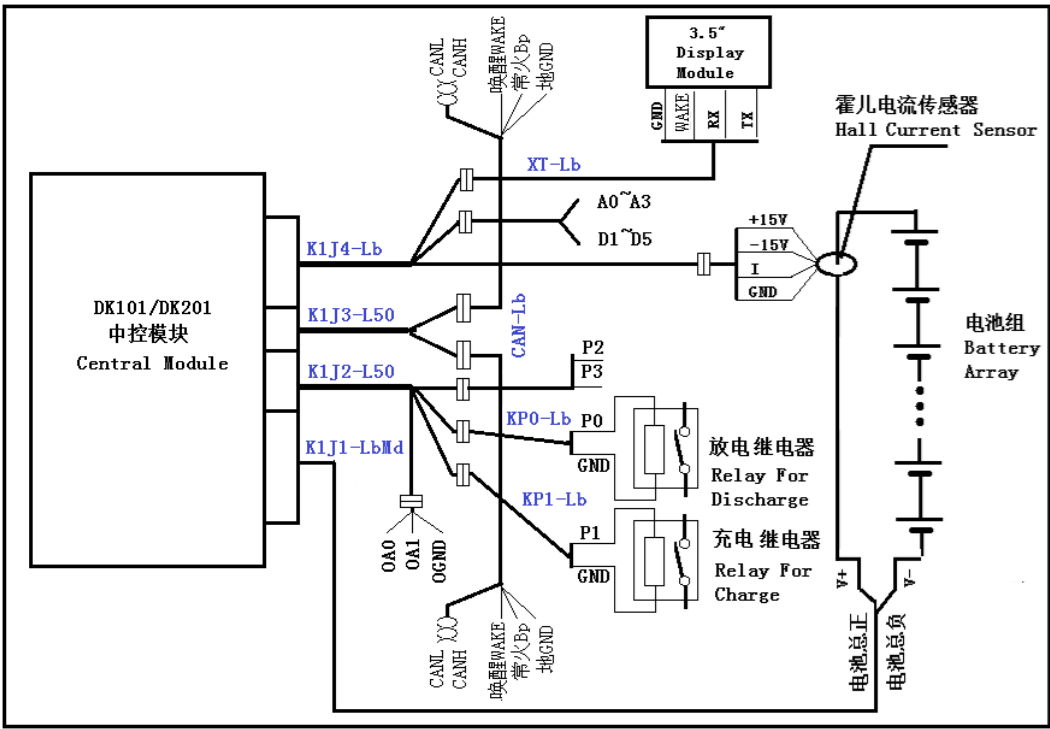


图 7-3-1 中控模块 DK101/201 接线图

Fig 7-3-1 Wiring of Central Module DK101/201

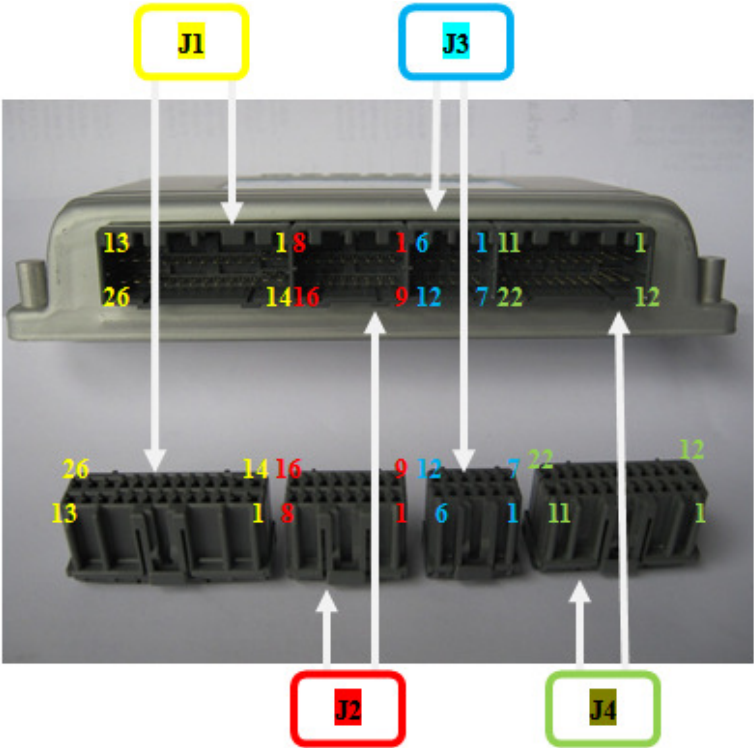


图 7-3-2 中控模块 DK201/DK101 接插件图

Fig7-3-2 Connectors of Central Module DK201/DK101

表 7-1-4 DK201 接口定义/Table 7-1-4 Connector Definition of DK201

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1		粗 big	J1-21		细 small	J2-15		细 small	J4-7	D2	细 small

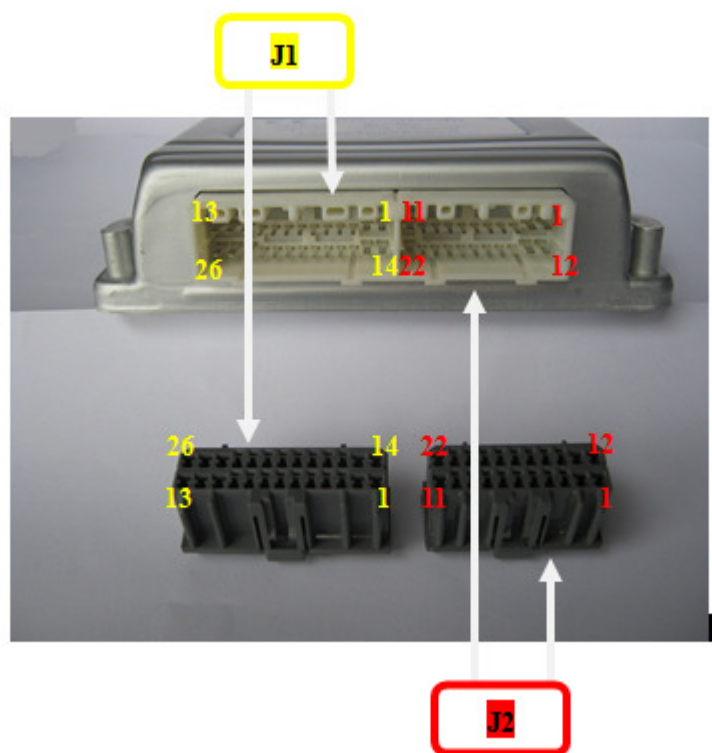


图 7-3-3 中控模块 DK202/DK102 接插件图

Fig7-3-3 Connectors of Central Module DK202/DK102

表 7-3-1 DK202V1 接口定义/Table 7-2-1 Connector Definition of DK202V1

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	V-	粗 big	J1-13	N1	粗 big	J1-25	S2	粗 big	J2-11	GND	粗 big
J1-2	V-200	粗 big	J1-14	V-400	粗 big	J1-26	GND	粗 big	J2-12		粗 big
J1-3		细 small	J1-15	V-600	粗 big	J2-1	Bp	粗 big	J2-13		粗 big
J1-4	V+	细 small	J1-16		细 small	J2-2	CAN_H	粗 big	J2-14		细 small
J1-5		细 small	J1-17		细 small	J2-3	CAN_L	细 small	J2-15		细 small
J1-6		细 small	J1-18		细 small	J2-4	WAKE	细 small	J2-16		细 small
J1-7	I	细 small	J1-19		细 small	J2-5	GND	细 small	J2-17		细 small
J1-8		细 small	J1-20	+15V	细 small	J2-6		细 small	J2-18		细 small
J1-9	GND	细 small	J1-21	-15V	细 small	J2-7	Bpo	细 small	J2-19		细 small
J1-10		细 small	J1-22	GND	细 small	J2-8	SGND	细 small	J2-20		细 small
J1-11		粗 big	J1-23	N2	细 small	J2-9	TX	细 small	J2-21		细 small
J1-12		粗 big	J1-24	S1	粗 big	J2-10	RX	细 small	J2-22		粗 big

AMP 接插件料号: (1)J1174516-6 (2)174515-6

Note: DK202-V1 is replaced by DK202-V2 since March of 2012

表 7-3-2 DK202V2 接口定义/Table 7-2-2 Connector Definition of DK202V2

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1		粗 big	J1-13	V+	粗 big	J1-25	D1	粗 big	J2-11	N1	粗 big
J1-2		粗 big	J1-14		粗 big	J1-26	V-	粗 big	J2-12	Bpo	粗 big
J1-3		细 small	J1-15		粗 big	J2-1	GND	粗 big	J2-13	TX	粗 big

J1-4		细 small	J1-16		细 small	J2-2	CANL	粗 big	J2-14	RX	细 small
J1-5		细 small	J1-17		细 small	J2-3	CANH	细 small	J2-15	SGND	细 small
J1-6		细 small	J1-18		细 small	J2-4	WAKE	细 small	J2-16	GND-HL	细 small
J1-7		细 small	J1-19		细 small	J2-5	Bp	细 small	J2-17	S2-HL	细 small
J1-8		细 small	J1-20		细 small	J2-6	+15V	细 small	J2-18	S1-HL	细 small
J1-9		细 small	J1-21		细 small	J2-7	-15V	细 small	J2-19	GND-HL	细 small
J1-10		细 small	J1-22		细 small	J2-8	I	细 small	J2-20	Bp-HL	细 small
J1-11		粗 big	J1-23		细 small	J2-9	SGND	细 small	J2-21	Bp-N1	细 small
J1-12	D2	粗 big	J1-24		粗 big	J2-10	N2	细 small	J2-22	Bp-N2	粗 big

AMP 接插件料号: (1) J1174516-6 (2) 174515-6

7.4 集成模块 Integral Module

特别关注!!

在模块负责管理的电池没完全正确地接好之前，不得插上电压采集接插件 J1。在需要更换电池之前，也必须先拔出电压采集接插件 J1。每次插入 J1 之前一定要仔细检查一遍，确保本模块负责管理的电池正确连好，否则有可能永久损坏模块。

Attention!!

Don’ t plug in J1 which samples the cell voltage before all cells, that are managed by this module, have been correctly linked. Unplug J1 before making any cell replacement. Every time when you plug in V1, double-check the connection to make sure all cells, which have been managed by this module, have been correctly connected or permanent damage may occur.

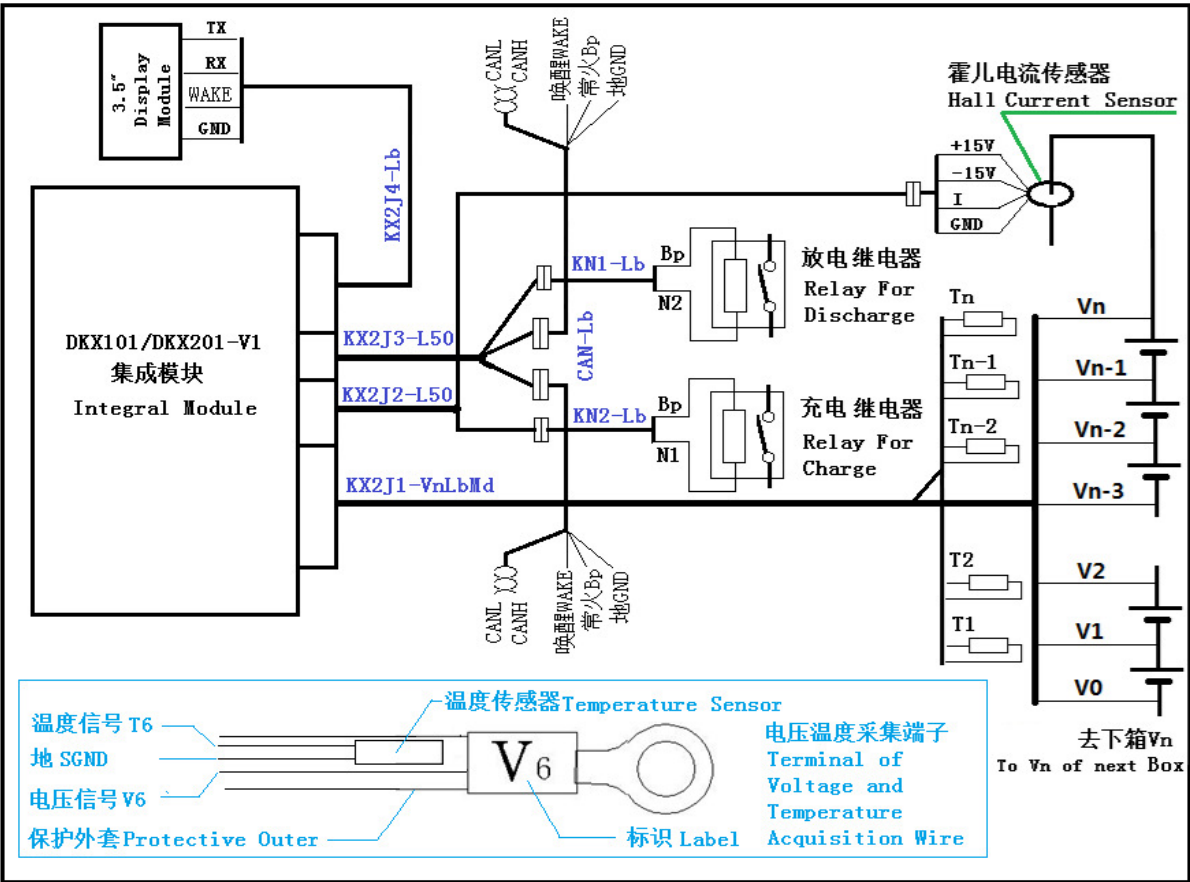


图 7-4-1 集成模块 DX101/201-V1 接线图

Fig 7-4-1 Wiring of Integral Module DX101/201-V1

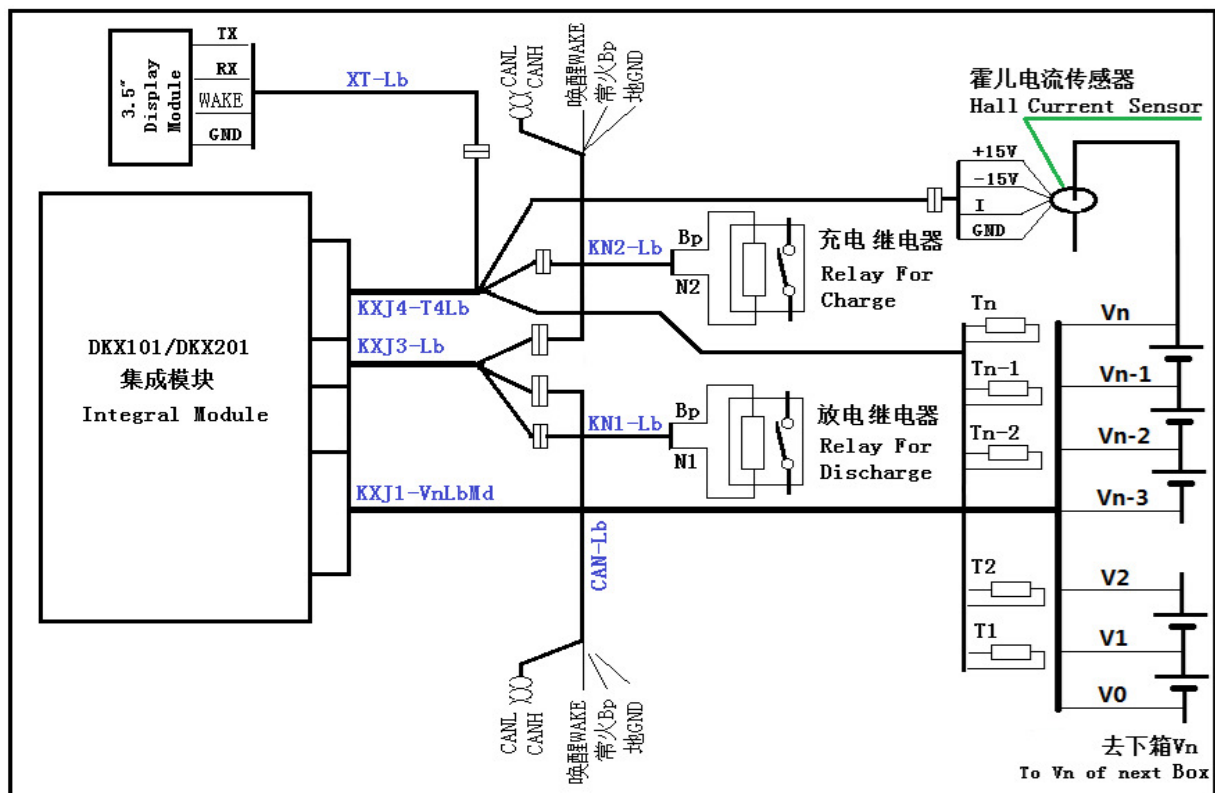


图 7-4-2 集成模块 DX101/201-V2 接线图

Fig 7-4-2 Wiring of Integral Module DX101/201-V2

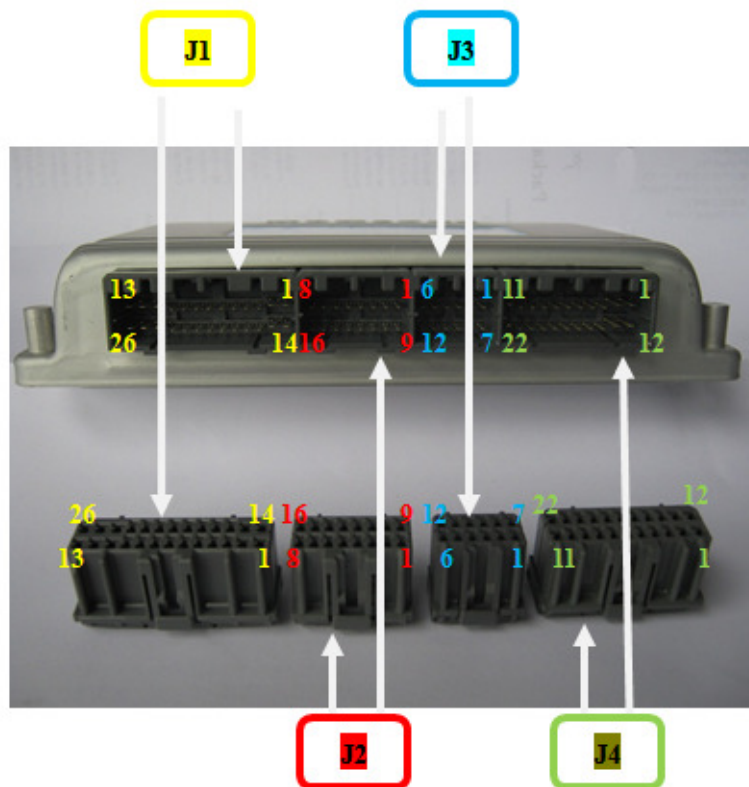


图 7-4-3 集成模块 DKX201/DKX101 接插件图

Fig7-4-3 Connectors of Integral Module DKX201/DKX101

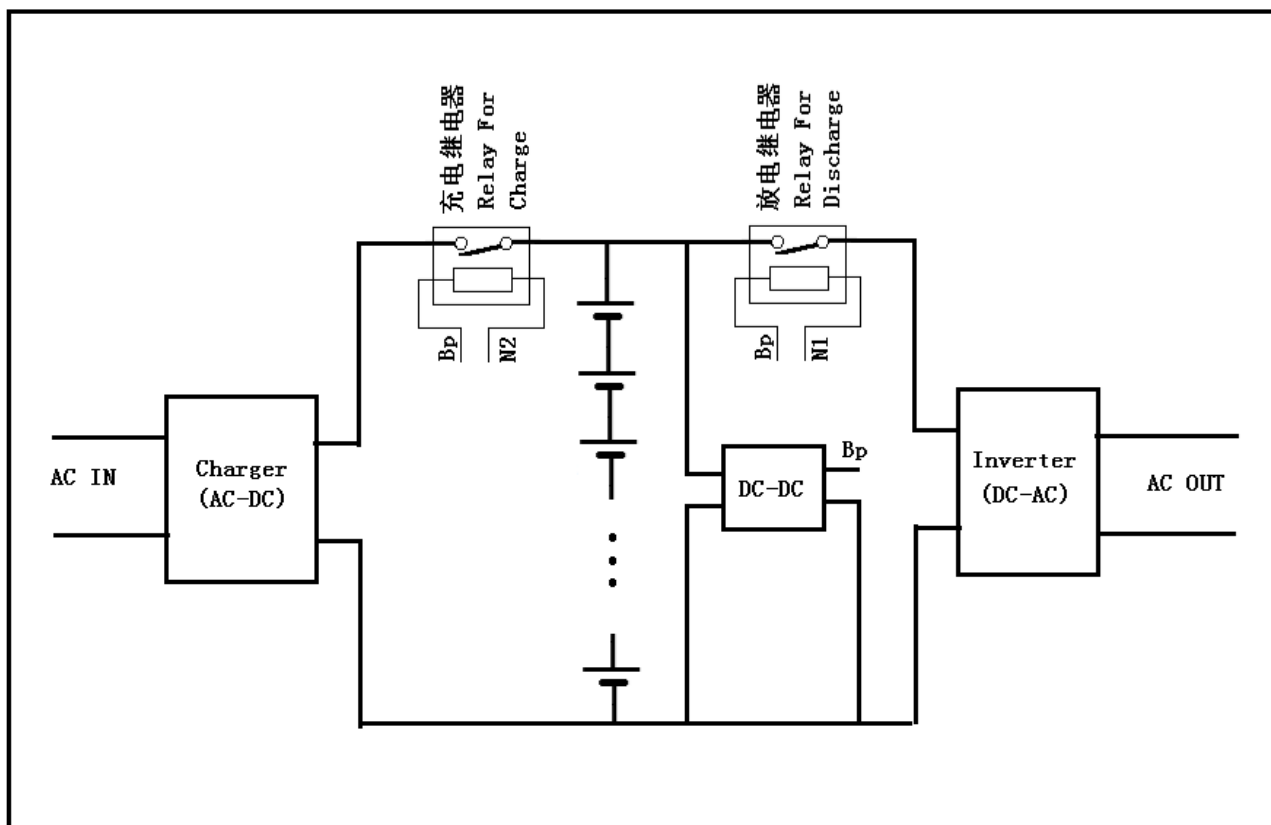


图 7-4-4 集成模块在 UPS 应用接线图

Fig 7-4-4 Wiring of Integral Module In UPS Application

表 7-4-1 DKX201-V1 接口定义/Table 7-1-4 Connector Definition of DKX201-V1

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	V0	粗 big	J1-21	GND	细 small	J2-15	+15v	细 small	J4-7		细 small
J1-2	V1	粗 big	J1-22	T5	细 small	J2-16	N2	细 small	J4-8		细 small
J1-3	V2	细 small	J1-23	T6	细 small	J3-1	Bp	细 small	J4-9		细 small
J1-4		细 small	J1-24	GND	粗 big	J3-2	WAKE-UP	细 small	J4-10		细 small
J1-5		细 small	J1-25	T7	粗 big	J3-3	CAN_H	细 small	J4-11		粗 big
J1-6	V3	细 small	J1-26	T8	粗 big	J3-4	CAN_L	细 small	J4-12		粗 big
J1-7	V4	细 small	J2-1		细 small	J3-5	N1	细 small	J4-13		粗 big
J1-8		细 small	J2-2		细 small	J3-6	GND	细 small	J4-14		细 small
J1-9	V5	细 small	J2-3	V+	细 small	J3-7	GND	细 small	J4-15		细 small
J1-10	V6	细 small	J2-4		细 small	J3-8	WAKE-UP	细 small	J4-16		细 small
J1-11		粗 big	J2-5		细 small	J3-9	CAN_H	细 small	J4-17		细 small
J1-12	V7	粗 big	J2-6	V-	细 small	J3-10	CAN_L	细 small	J4-18		细 small
J1-13	V8	粗 big	J2-7		细 small	J3-11	GND	细 small	J4-19		细 small
J1-14	GND	粗 big	J2-8		细 small	J3-12	Bp	细 small	J4-20		细 small
J1-15	T1	粗 big	J2-9		细 small	J4-1	TX	粗 big	J4-21		细 small
J1-16	T2	细 small	J2-10		细 small	J4-2	RX	粗 big	J4-22		粗 big
J1-17	GND	细 small	J2-11	GND	细 small	J4-3	GND	细 small			
J1-18	GND	细 small	J2-12		细 small	J4-4	GND	细 small			
J1-19	T3	细 small	J2-13	I	细 small	J4-5		细 small			

J1-20	T4	细 small	J2-14	-15V	细 small	J4-6		细 small			
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AMP 接插件料号: (1)J1:174516-6 (2)J2:174514-6 (3)J3:174913-6 (4)J4:174515-6

Note: DKX201-V1 is replaced by DKX201-V2 since March of 2012

表 7-1-4 DKX201-V2 接口定义/Table 7-1-4 Connector Definition of DKX201-V2

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	V0	粗 big	J1-21	V15	细 small	J2-15		细 small	J4-7	T1	细 small
J1-2	V2	粗 big	J1-22	V17	细 small	J2-16		细 small	J4-8	T2	细 small
J1-3	V4	细 small	J1-23		细 small	J3-1	Bp	细 small	J4-9	T3	细 small
J1-4	V6	细 small	J1-24		粗 big	J3-2	WAKE-UP	细 small	J4-10	T4	细 small
J1-5	V8	细 small	J1-25		粗 big	J3-3	CAN_H	细 small	J4-11	N2	粗 big
J1-6	V10	细 small	J1-26		粗 big	J3-4	CAN_L	细 small	J4-12		粗 big
J1-7	V12	细 small	J2-1		细 small	J3-5	N1	细 small	J4-13	+15v	粗 big
J1-8	V14	细 small	J2-2		细 small	J3-6	GND	细 small	J4-14	-15v	细 small
J1-9	V16	细 small	J2-3		细 small	J3-7	GND	细 small	J4-15	I	细 small
J1-10	V18	细 small	J2-4		细 small	J3-8	WAKE-UP	细 small	J4-16	GND	细 small
J1-11		粗 big	J2-5		细 small	J3-9	CAN_H	细 small	J4-17		细 small
J1-12		粗 big	J2-6		细 small	J3-10	CAN_L	细 small	J4-18		细 small
J1-13		粗 big	J2-7		细 small	J3-11	GND	细 small	J4-19		细 small
J1-14	V1	粗 big	J2-8		细 small	J3-12	Bp-N1	细 small	J4-20		细 small
J1-15	V3	粗 big	J2-9		细 small	J4-1	GND	粗 big	J4-21		细 small
J1-16	V5	细 small	J2-10		细 small	J4-2	TXD	粗 big	J4-22	Bp-N2	粗 big
J1-17	V7	细 small	J2-11		细 small	J4-3	RXD	细 small			
J1-18	V9	细 small	J2-12	GND	细 small	J4-4	GND	细 small			
J1-19	V11	细 small	J2-13		细 small	J4-5		细 small			
J1-20	V13	细 small	J2-14		细 small	J4-6		细 small			

AMP 接插件料号: (1)J1:174516-6 (2)J2:174514-6 (3)J3:174913-6 (4)J4:174515-6

特别关注!!

在模块负责管理的电池没完全正确地接好之前, 不得插上电压采集接插件 J1. 在需要更换电池之前, 也必须先拔出电压采集接插件 J1. 每次插入 J1 之前一定要仔细检查一遍, 确保本模块负责管理的电池正确连好, 否则有可能永久损坏模块。

Attention!!

Don' t plug in J1 which samples the cell voltage before all cells, that are managed by this module, have been correctly linked. Unplug J1 before making any cell replacement. Every time when you plug in V1, double-check the connection to make sure all cells, which have been managed by this module, have been correctly connected or permanent damage may occur.

7.5 显示模块 Display Module

7.5.1 仪表 Dashboard

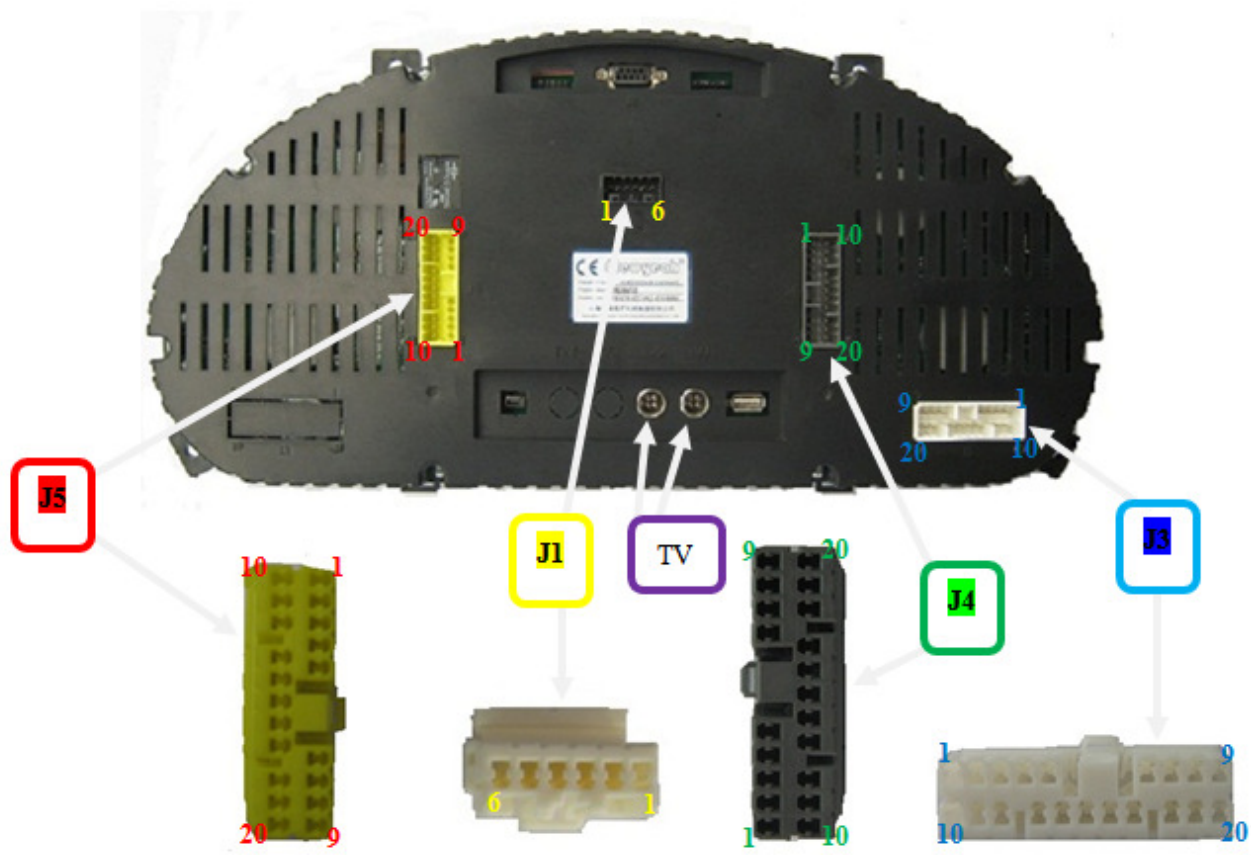


图 7-5-1 仪表 ZB286/ZB186 接插件图
Fig7-5-1 Connectors of Dashboard ZB286/ZB186

表 7-5-1 ZB286, ZB186 接口定义/Table 7-5-1 Connector Definition of ZB286, ZB186

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	常火	粗 big	J2-17	车速	粗 big	J4-19	机滤堵塞	粗 big
J1-2	CANH	粗 big	J2-18	转速	粗 big	J4-20	燃滤报警	粗 big
J1-3	CANL	粗 big	J2-19	备用	粗 big	J5-1	备用	粗 big
J1-4	WAKE_UP	粗 big	J2-20	备用	粗 big	J5-2	缓速器指示	粗 big
J1-5	KEY ON	粗 big	J4-1	Acc 档	粗 big	J5-3	水位 1*	粗 big
J1-6	GND	粗 big	J4-2	应急开关	粗 big	J5-4	水位 2*	粗 big
J2-1		粗 big	J4-3	备用	粗 big	J5-5	安全锤	粗 big
J2-2	发动机停机	粗 big	J4-4	备用	粗 big	J5-6		粗 big
J2-3	SCR	粗 big	J4-5	请求下车	粗 big	J5-7	ECAS2	粗 big
J2-4	门 3 应急开盖	粗 big	J4-6	左前贴片磨损	粗 big	J5-8	ECAS1	粗 big
J2-5	门 3 应急旋转	粗 big	J4-7	右前贴片磨损	粗 big	J5-9	门泵电源	粗 big
J2-6	左后贴片磨损	粗 big	J4-8	左中贴片磨损	粗 big	J5-10	ECAS4	粗 big
J2-7	右后贴片磨损	粗 big	J4-9	右中贴片磨损	粗 big	J5-11	左仓门	粗 big
J2-8	备用	粗 big	J4-10	门 1 应急开盖	粗 big	J5-12	右仓门	粗 big
J2-9	备用	粗 big	J4-11	门 1 应急旋转	粗 big	J5-13	ECAS3	粗 big
J2-10	水温	粗 big	J4-12		粗 big	J5-14	发动机等待	粗 big
J2-11	油压	粗 big	J4-13	离合器开关	粗 big	J5-15	发动机保养	粗 big

J2-12	油量	粗 big	J4-14	门 2 应急开盖	粗 big	J5-16	ABS	粗 big
J2-13	气压 1	粗 big	J4-15	门 2 应急旋转	粗 big	J5-17	充电指示	粗 big
J2-14	气压 2	粗 big	J4-16	R 档	粗 big	J5-18	ASR	粗 big
J2-15	仓温	粗 big	J4-17	N 档	粗 big	J5-19	发动机诊断	粗 big
J2-16	+12v 电源	粗 big	J4-18	空滤堵塞	粗 big	J5-20	缓速器电源	粗 big

AMP 接插件料号: (1) J1:174923-1 (2) J3:174952-1 (3) J4: 174952-6 (4) J5: 174952-7

7.5.2 液晶显示器 LCD Display

7.5.2.1 XS201-70,XS101-70

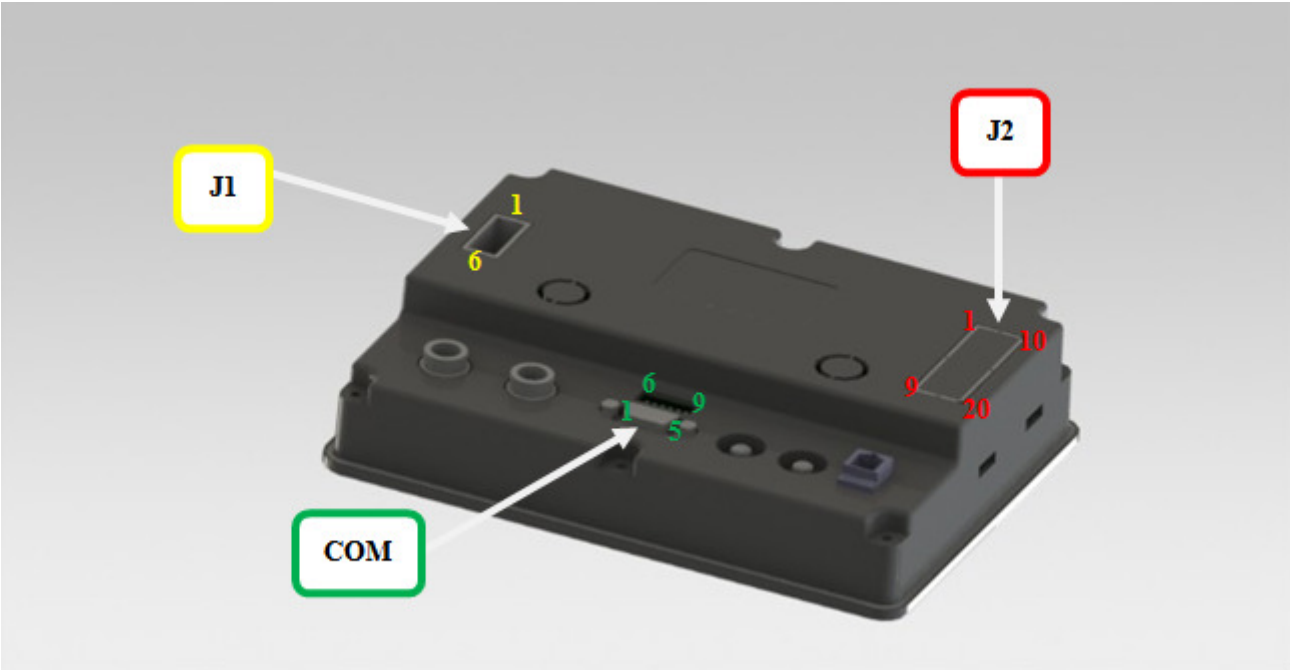


图 7-5-2 XS201-70,XS101-70 接插件图
Fig7-5-2 Connectors of XS201-70, XS101-70

表 7-5-2 XS201-70, XS101-70 接口定义/Table 7-5-2 Connector Definition of XS201-70, XS101-70

接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type	接口 Pin	名称 Name	端子 Pin Type
J1-1	常火	粗 big	J2-4	D2	粗 big	J2-13		粗 big	COM-1	GND	
J1-2	CAN_H	粗 big	J2-5	D3	粗 big	J2-14		粗 big	COM-2	TX	
J1-3	CAN_L	粗 big	J2-6		粗 big	J2-15		粗 big	COM-3	RX	
J1-4	WAKE-UP	粗 big	J2-7	A1	粗 big	J2-16		粗 big	COM-4		
J1-5	KEY ON	粗 big	J2-8	A2	粗 big	J2-17		粗 big	COM-5	GND	
J1-6	GND	粗 big	J2-9		粗 big	J2-18		粗 big	COM-6		
J2-1	ESS	粗 big	J2-10		粗 big	J2-19		粗 big	COM-7		
J2-2	VSS	粗 big	J2-11		粗 big	J2-20		粗 big	COM-8		
J2-3	D1	粗 big	J2-12	+12v	粗 big				COM-9		

7.4.2.2 XS201-35,XS101-35

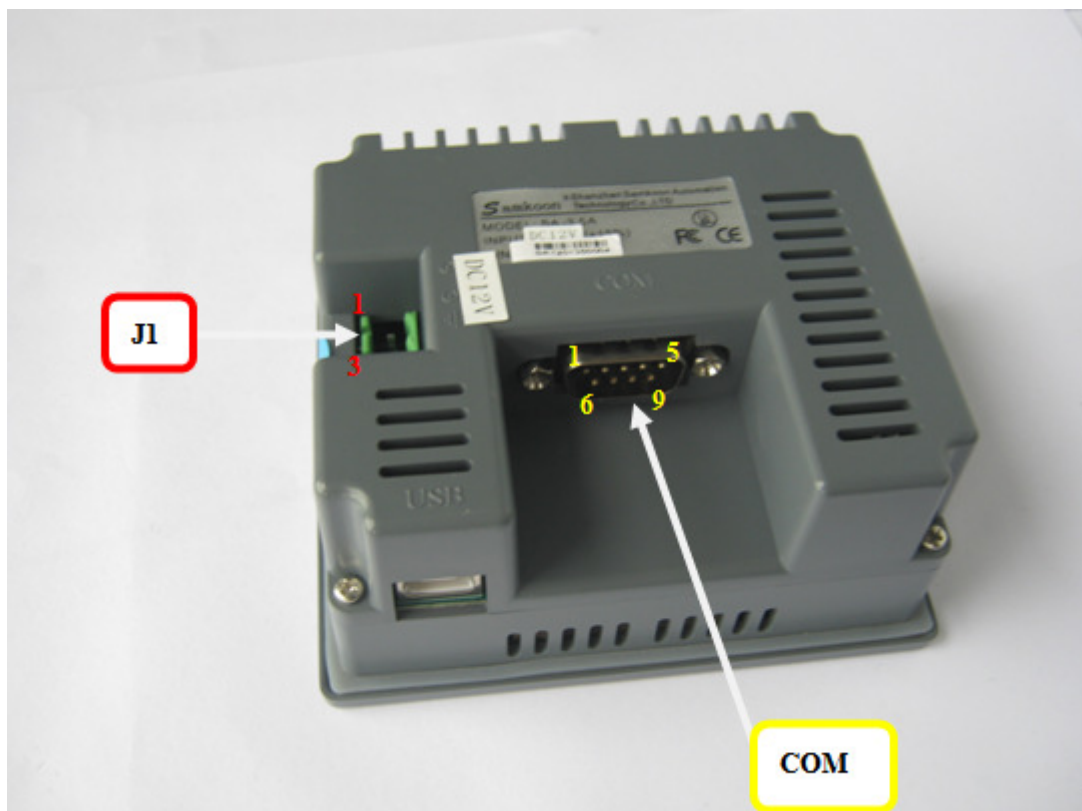


图 7-5-3 XS201-35, XS101-35 接插件图
Fig7-5-3 Connectors of XS201-35, XS101-35

表 7-5-3 XS201-35, XS101-35 接口定义/Table 7-5-3 Connector Definition of XS201-35, XS101-35

接口 Pin	名称 Name	接口 Pin	名称 Name	接口 Pin	名称 Name	接口 Pin	名称 Name
J1-1	KEY_ON	COM-1	GND	COM-4		COM-7	
J1-2	GND	COM-2	TX	COM-5	GND	COM-8	
J1-3	GND	COM-3	RX	COM-6		COM-9	

8 显示模块操作说明 Operation of Display Module

8.1 仪表 DashBoard

8.1.1 表盘说明 Layout of the face

图 8-1 为仪表的正视图，盘面上主要包括 4 块指针式表、20 个由发光二极管（LED）点亮的图标、1 块 7" 液晶显示屏和 6 个按键。

Figure 8-1 shows the face of dashboard, there are four meters, twenty Icons lighted by LED, one 7" TFT LCD and six keys on the face.

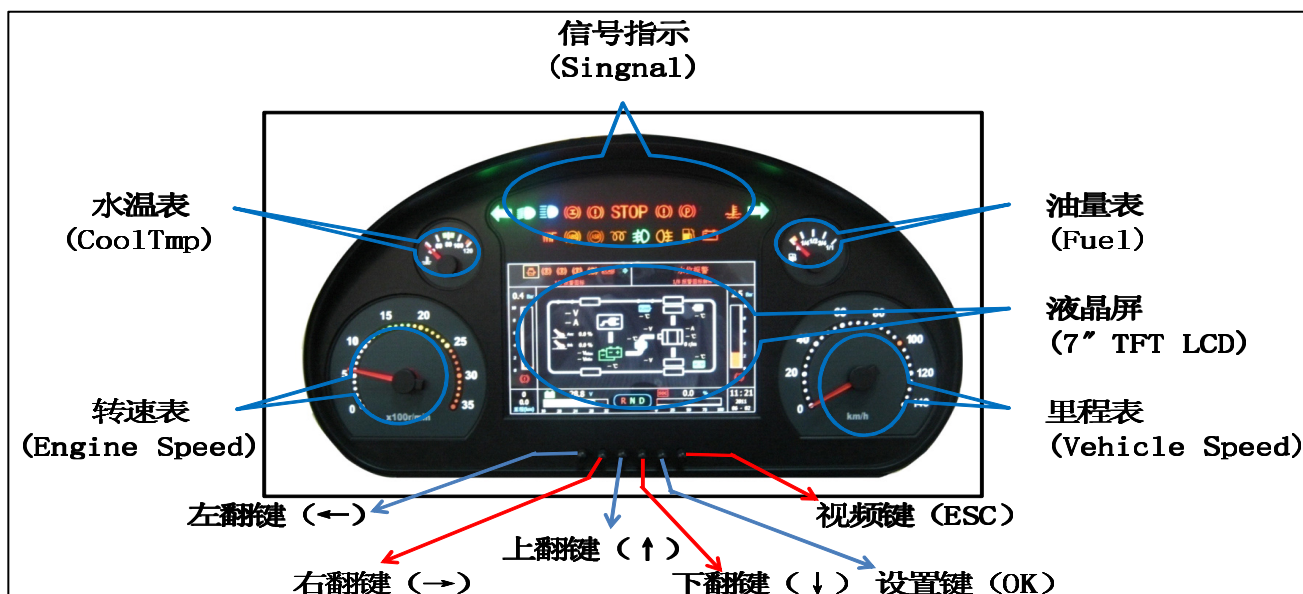


图 8-1 仪表正面

Fig 8-1 Face of Dashboard

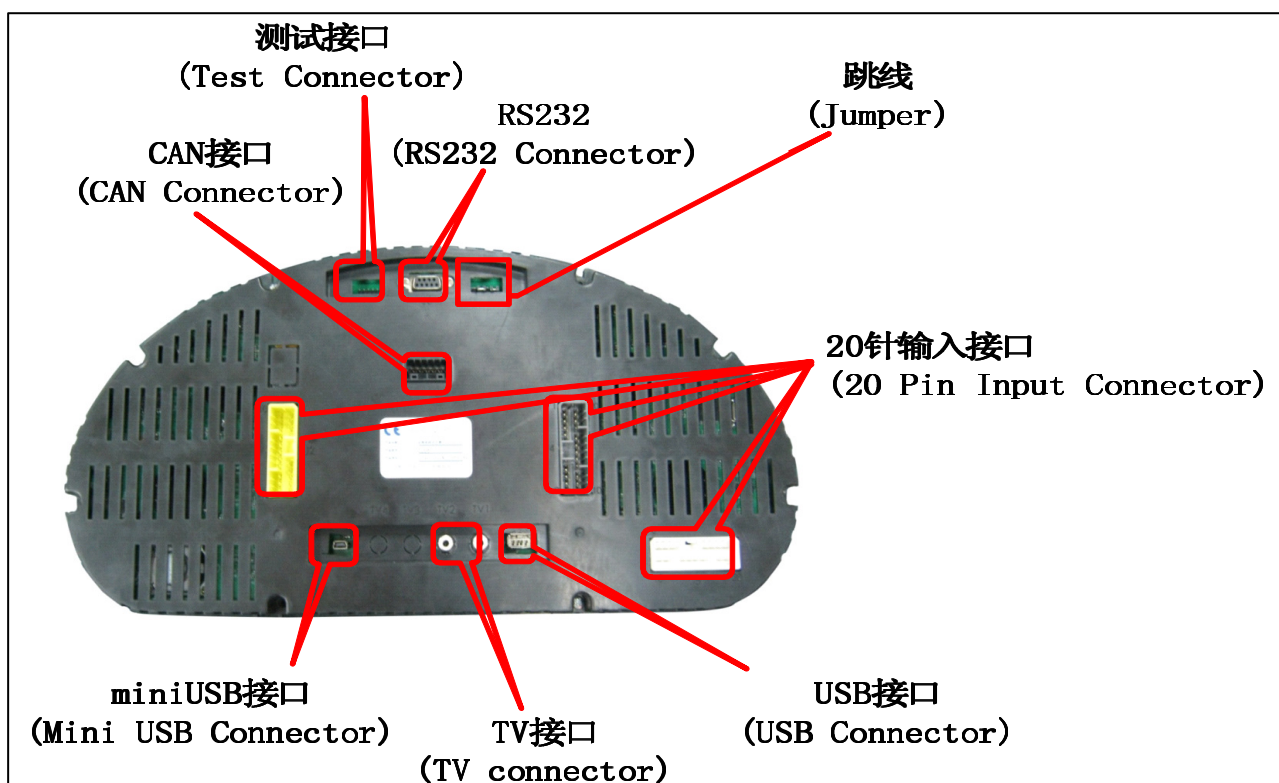


图 8-2 仪表背面

Fig 8-2 Back of Dashboard

8.1.2 表背说明 Layout of the back

图 8-2 为仪表的后视图，后面有 1 个 CAN 接口、1 个 RS232 接口和 1 个测试接口、三个 20 针输入接口、一个跳线、一个 USB 接口、一个 mini USB 接口、两个 TV 接口，接口定义参见附录 C。

Figure 8-2 shows the back of the dashboard. There are one CAN connector, one RS232 connector , one test connector , three 20-pin input connector, one jumper, one USB connector, one mini USB

connector and two TV connector .

8.1.3 按键说明 Key Description

仪表板从左至右六个操作键分别为：左翻键（←）、右翻键（→）、上翻键（↑）、下翻键（↓）、设置键（OK）、视频键（ESC）。

From left to right, the keys are left (←), right (→), PRE (↑), NEXT (↓), SET(OK), Video Select Key (ESC) respectively.

按键基本功能如下：

左翻键（←）、右翻键（→）：液晶显示翻页，设置时间时增减数字。

上翻键（↑）、下翻键（↓）：液晶显示翻页，设置时间时改变设置位置。

设置键（OK）：在屏 1，设置时间，在屏 5，按校准表指针。

视频键（ESC）：进入监控视频 1、2，或者退出。

Definition of Keys:

left (←), right (→) : Change display, increase or decrease when set time.

PRE Key (↑), NEXT Key (↓) : Change page of display, change position of time when set time.

Set Key (OK) : Enter time-set mode under display 1, Correct meters under display 5.

ESC: Change LCD display among TV1 ,TV2 and data show.

8.1.4 液晶显示 Display On LCD

第 1 屏，缺省屏，为重要信息显示屏, 包括里程、SOC、气压、电机转速、时间、自动弹出的报警图标等等。

Display 1, Default Display, shows the most important message which includes mileage, SOC, brake air pressure, speed of electric motor and local time, alarming icons popped up automatically if the alarming takes place etc.

第 2 屏为车辆控制系统和电池管理系统数据列表显示屏。

Display 2 shows data of Vehicle Control Unit (VCU) and Battery Management System (BMS) in table format.

第 3 屏为单体电池电压显示屏。

Display 3 shows Individual Battery Voltage.

第 4 屏为电池温度显示屏。

Display 4 shows Battery Temperature.

第 5 屏为电池均衡状态。

Display 5 shows Battery Balance.

第 6 屏为开关量输入显示屏。

Display 6 shows state of switch (digital) signal.

第 7 屏为模拟量输入显示屏。

Display 7 shows Analogous Input.

第 8 屏为模块输出状态显示屏。

Display 8 shows Output state of modules.

第 9 屏为模块状态显示屏。

Display 9 shows state of modules.

第 10 屏为轮胎状态显示屏。

Display 10 shows state of tire.

第 11 屏为电池管理系统记录数据。

Display 11 shows recording data of BMS.

第 12 屏为车辆控制系统记录数据。

Display 12 shows recording data of Vehicle Control Unit.

第13屏为车辆行驶记录数据。

Display 13 shows recording of vehicle travelling data.

8.1.5 设置时间 Steps of Set Time

1) 按“左翻键(←)”或“右翻键(→)”将画面切换到屏1。

Step 1, change display to display 1 by clicking left (←) or right (→).

2) 按“设置键(OK)”进入时钟设置状态,此时代表时钟的数字高亮显示。

Step 2, enter Time Set State by clicking Set Key, under this circumstance the digit which represents HOUR will be highlighted.

3) 按“左翻键(←)”或“右翻键(→)”将改变闪烁处数字。

Step 3, change the flashing digit by clicking left (←) or right (→).

4) 再按“上翻键(↑)”或“下翻键(↓)”进入下一数字设置直到时钟的所有部分都设置完。

Step 4, change position of Set Digit by clicking Set Key again. Set Time State will be terminated as all parts of time have been set.

注: 在设置状态下, 如果长时间的没有按键动作, 设置也将自动结束。

Note: Set Time State will be terminated automatically if there is no key been touched for a certain time.

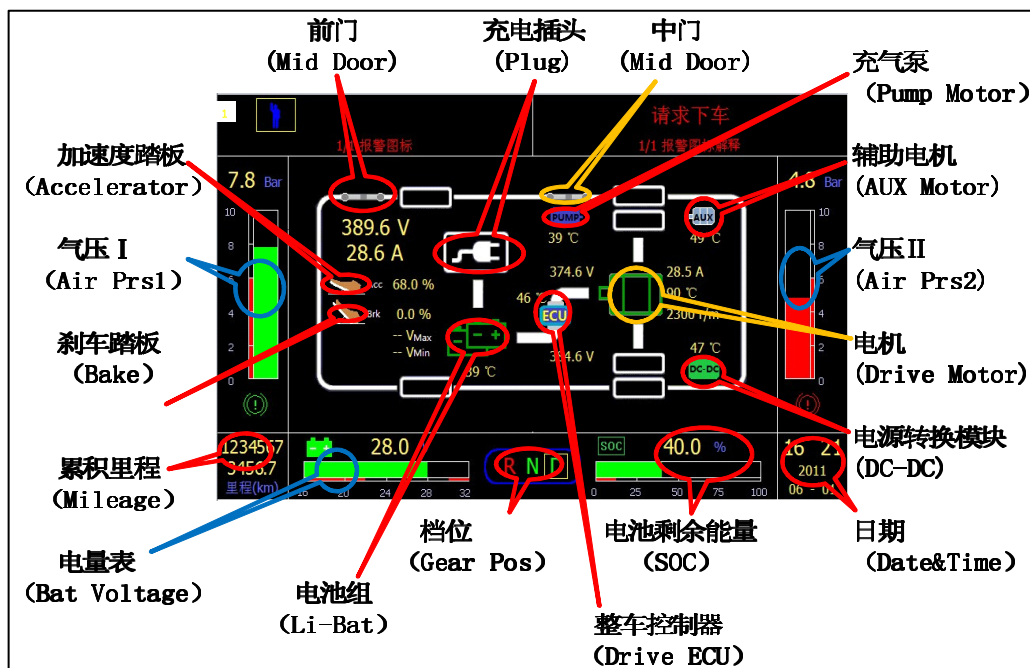


图 8-3 显示 1—缺省画面/Fig.8-3 Display1--Default Display

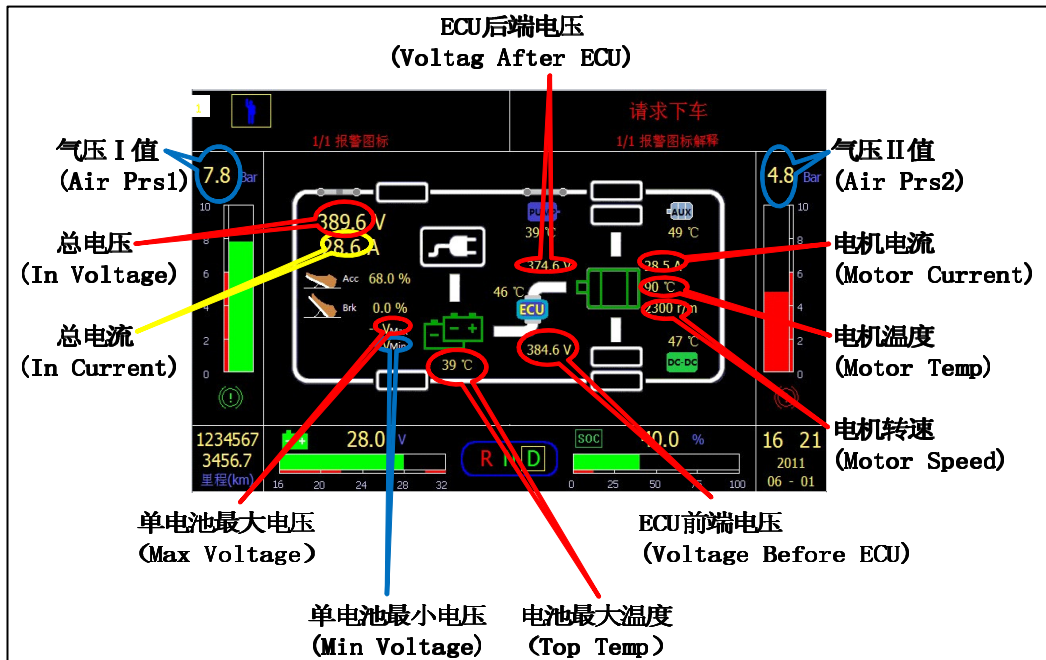


图 8-4 新能源车缺省显示/ Fig. 8-4 Display for Hybrid or Electric Vehicle

域数据列表/Field Data Table								
								BMS:1/4
名称/Name	域名:域值	域名:域值	域名:域值	域名:域值	域名:域值	域名:域值	域名:域值	域名:域值
电池状态1	SOC太低: 0	温度太高: 1	电流太高: 0	单压太低: 0	单压太高: 0	总压太低: 0	总压太高: 0	温度太低: 0
电池状态2	SOC过低: 0	温度过高: 1	电流过高: 1	单压过低: 0	单压过高: 0	总压过低: 0	总压过高: 0	温度过低: 0
电池状态3	压差太大: 0	温差太大: 0	未定义: 0	未定义: 0	未定义: 0	未定义: 0	绝缘故障: 0	未定义: 0
电池状态4	压差太大: 0	温差太大: 0	无效数据: 0	未定义: 0	SOC过高: 0	均衡错误: 0	绝缘故障: 0	BMS故障: 0
操作状态	紧急停车: 0	未定义: 0	未定义: 0	未定义: 0	未定义: 0	倒车: 0	空档: 0	前进: 1
驱动状态	就绪: 1	故障: 1	反转: 0	制动: 0	驱动: 1	怠速: 0	停机: 0	启动: 0
其它数据列表/Other Data Table								
名称/Name	数值/Val	信息/Info	名称/Name	数值/Val	信息/Info	名称/Name	数值/Val	信息/Info
总电压	394.4 V	0F68	总电流	-163.2 A	76A0	最高电池电压	3.388 V	2组3号
最低电池电压	3.227 V	7组5号	加速踏板	72.8 %	B6	刹车踏板	0.0 %	00
模块后电压	375.8 V	35BE	模块前电压	385.8 V	3622	控制模块温度	46 °C	56
电池最高温度	69 °C	8组12号	环境温度	26 °C	42	电机温度	90 °C	82
电机电流	29.7 A	2839	电机转速	2324 r/m	1228	气泵温度	39 °C	4F
助力泵温度	49 °C	59	电源温度	47 °C	57	VCU系统码	0	00
VCU生命值	0	00	SOH	0.0%	00	SOC	88.8%	DE
发电机转速	0	0000	发电机温度	-- °C	00	电机扭矩	--	--
同组最大温差	0 °C	X组	正极绝缘电阻	--	0000	负极绝缘电阻	--	0000
充电状态	0	00	充电故障码	0	00	充电生命	0	00
电量	298.16Kwh	0.00Kwh						

图 8-5 显示 2/ Fig. 8-5 Display2

电池电压/Battery Voltage (V)										BMS:2/4
组\单元	1/11	2/12	3/13	4/14	5/15	6/16	7/17	8/18	9/19	10/20
第1组	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37
第1组	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37
第2组	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37
第2组	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37	3.27	3.37
第3组	3.35	3.25	3.35	2.58	3.35	3.25	3.35	3.25		
第4组	3.35	3.25	3.35	3.25	3.35	3.25	3.35	3.25		
第5组	3.35	3.25	3.35	3.25	3.35	3.25	3.35	3.25		
第6组	3.35	3.25	3.35	3.25	3.35	3.25	3.35	3.25		
第7组	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
第7组	3.35	3.35								
第8组	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
第8组	3.35	3.35								
第17组	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35
第18组	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35

图 8-6 显示 3—单体电池电压
Fig. 8-6 Display3—Individual Battery Voltage

电池温度/Battery Temperature (°C)						
组\单元	1	2	3	4	5	6
第1组	32	32	32	32	32	32
第2组	32	32	32	32	32	32
第3组	32	32	32	32	32	32
第4组	32	32	32	32	32	32
第5组	32	32	32	32	32	32
第6组	32	32	32	32	32	32
第7组	32	32	32	32	32	32
第8组	32	32	32	32	32	32
第9组	32	32	32	32	32	32
第10组	32	32	32	32	32	32
第11组	32	32	32	32	32	32
第12组	32	32	32	32	32	32
第13组	--	--	--	--	--	--
第14组	--	--	--	--	--	--
第15组	--	--	--	--	--	--
第16组	--	--	--	--	--	--

图 8-7 显示 8-7/Fig. 8-7 Display4

均衡电流/Balance Current (A)										BMS:4/4
组\单元	1/11	2/12	3/13	4/14	5/15	6/16	7/17	8/18	9/19	10/20
第1组	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
第1组	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
第2组	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
第2组	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
第3组	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0		
第4组	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0		
第5组	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0		
第6组	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0		
第7组	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
第7组	0.0	0.0								
第8组	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
第8组	0.0	0.0								
第17组	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
第18组	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0

图 8-8 显示 5/ Fig. 8-8 Display5

开关量输入/Switch State							
序号	Name	状态	名称	序号	Name	状态	名称
0	KeyAcc	N/A	ACC档	24	reserved	N/A	备用
1	KeyOn	On	ON档	25	FrontTikLightCmd	N/A	前售票灯命令
2	KeySta	N/A	点火档	26	MidTckLightCmd	N/A	中售票灯命令
3	Hazard	N/A	告警信号	27	RearTckLightCmd	N/A	后售票灯命令
4	VDODiag	N/A	VDO诊断	28	FrontTV	N/A	前电视开关
5	ABSDiag	N/A	ABS诊断	29	RearTV	N/A	后电视开关
6	ACEnhance	N/A	怠速提升	30	TVIn	N/A	电视收起
7	ACTimer	N/A	空调定时	31	TVOut	N/A	电视展开
8	LeftTurn	N/A	左转向开关	32	Reserve80	N/A	备用
9	RightTurn	N/A	右转向开关	33	Reserve81	N/A	备用
10	LeftBak	N/A	左转向备用	34	FrontVntIn	N/A	前排气扇进气
11	RightBak	N/A	右转向备用	35	FrontVntOut	N/A	前排气扇出气
12	FrontFog	N/A	前雾开关	36	RearVntIn	N/A	后排气扇进气
13	RearFog	N/A	后雾开关	37	RearVntOut	N/A	后排气扇出气
14	HighBeam	N/A	远光开关	38	Wiper_Cam	N/A	雨刮凸轮
15	LowBeam	N/A	近光开关	39	DisAlarm	N/A	报警消音
16	RunLight	N/A	小灯开关	40	Wiper_Int	N/A	雨刮间隙开关
17	TopLight1Cmd	N/A	顶灯1命令	41	Wiper_Wash	N/A	雨刮喷淋开关
18	TopLight2Cmd	N/A	顶灯2命令	42	Wiper_Hi	N/A	雨刮高速档开关
19	TopLight3Cmd	N/A	顶灯3命令	43	Wiper_Lo	N/A	雨刮低速档开关
20	TopLight4Cmd	N/A	顶灯4命令	44	SuspUp	N/A	悬架升
21	LugCabLightCmd	N/A	行李仓灯命令	45	SuspDown	N/A	悬架降
22	DriverLightCmd	N/A	司机灯命令	46	SuspReset	N/A	悬架归位
23	NightLightCmd	N/A	夜灯命令	47	SuspKneel	N/A	悬架侧倾

图 8-9 显示 6/ Fig. 8-9 Display6

[illegible]

序号	名称	反馈电压(V)	反馈电流(A)	过载	欠载	逻辑	状态
0	左小灯	28.3	1.3	No	No	Normal	ON
1	右小灯	28.3	1.2	No	No	Normal	ON
2	左转向	0	0	No	No	Normal	OFF
3	右转向	0	0	No	No	Normal	OFF
4	左前雾	0	0	No	No	Normal	OFF
5	右前雾	0	0	No	No	Normal	OFF
6	远光	0	0	No	No	Normal	OFF
7	近光	28.3	6.9	No	No	Normal	ON
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							

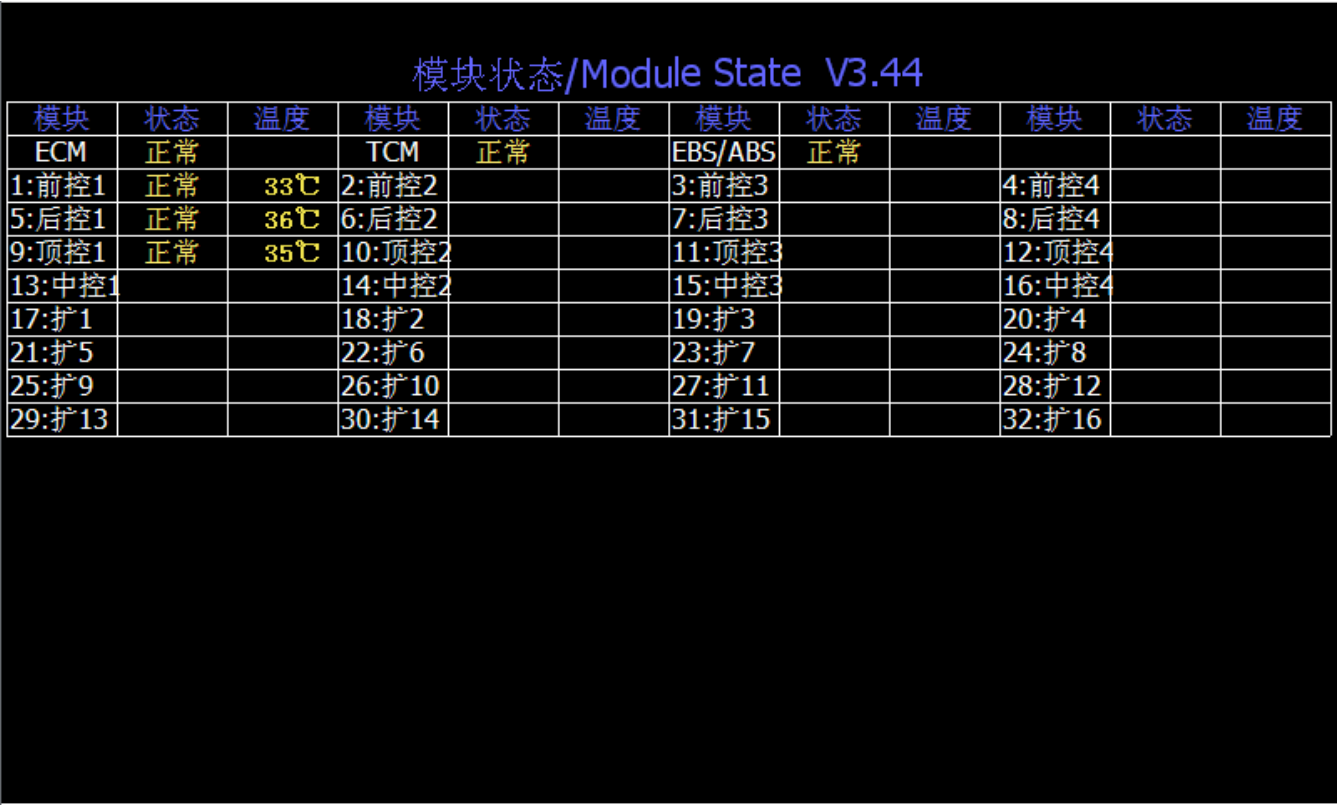


图 8-12 显示 9/ Fig. 8-12 Display 9

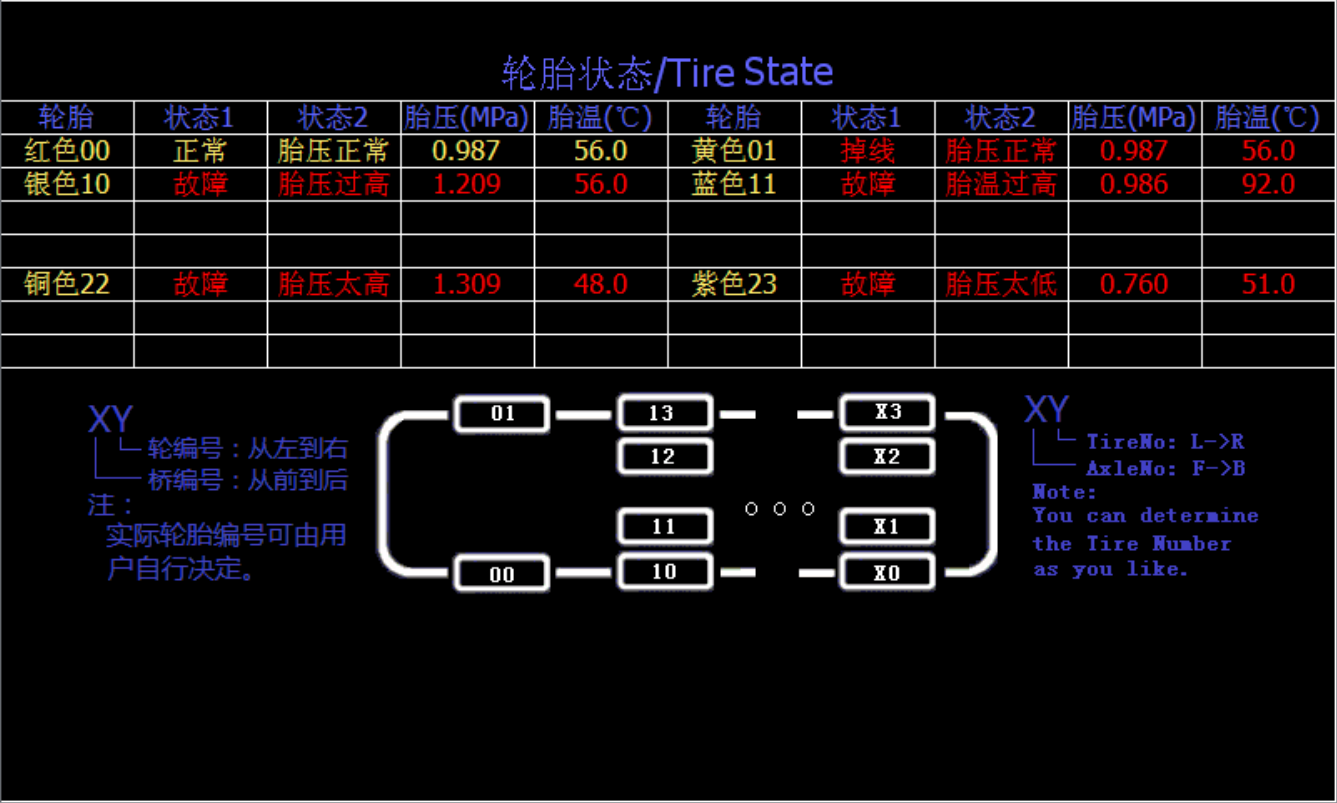


图 8-13 显示 10/ Fig. 8-13 Display10

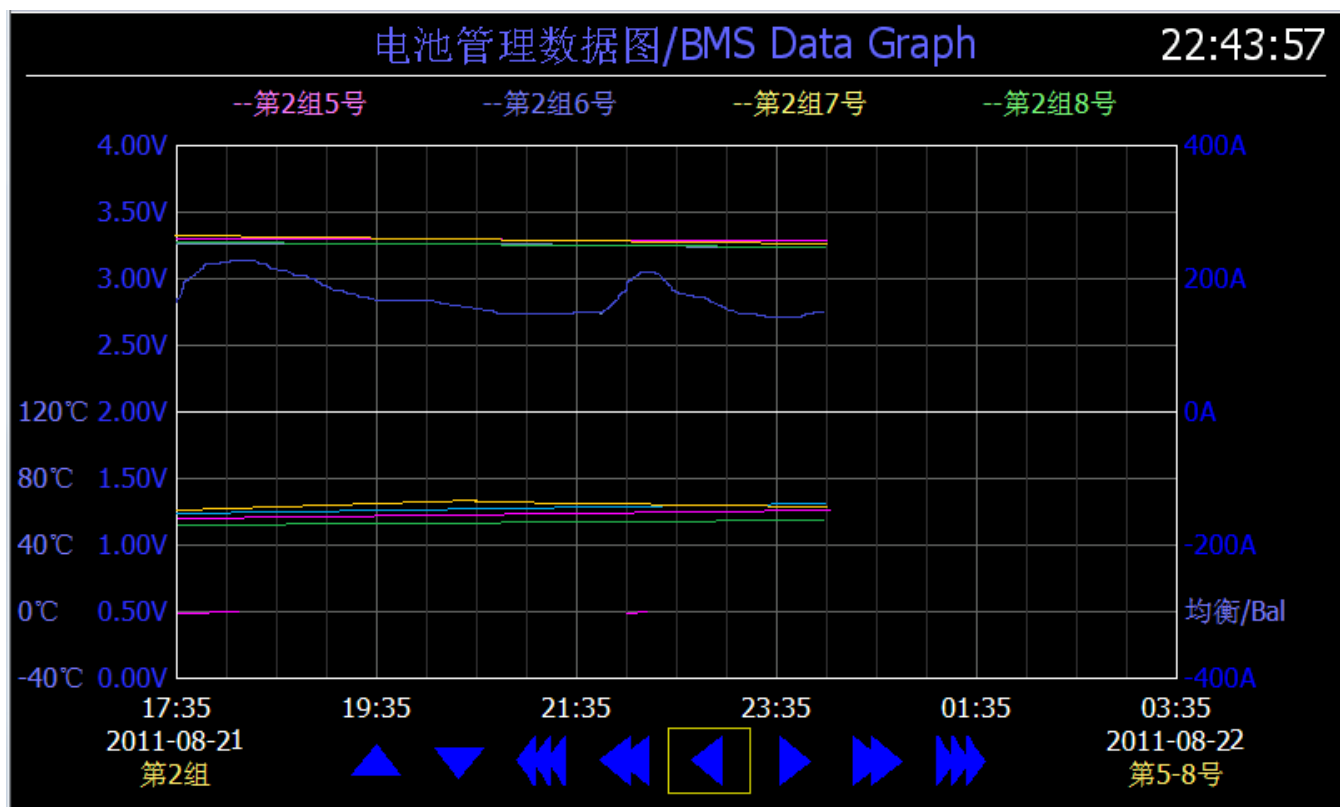


图 8-14 显示 11/ Fig. 8-14 Display11

显示 11 是仪表部分 BMS 数据记录的显示, 数据记录间隔为 1 分钟, 循环记录一个月。按左右键可挪动

选择键位置, 按确认键可向前向后移动画面。是后退 5 天, 后退 1 天, 后退 5 小时。

是前进 5 天, 前进 1 天, 前进 5 小时。选择前 4 个电池, 选择后 4 个电池。

Display 11 shows BMS recorded data whose interval is 1 minute. Click “Left” or “Right” Key to change selected button on the bottom of the screen, then click “OK” key can move the

graph backwards or forwards.  backward 5 days,  backward 1 day,  backward 5

hours.  forward 5 days,  forward 1 day,  forward 5 hours. Click  for viewing

previous 4 cells, click  for next 4 cells.

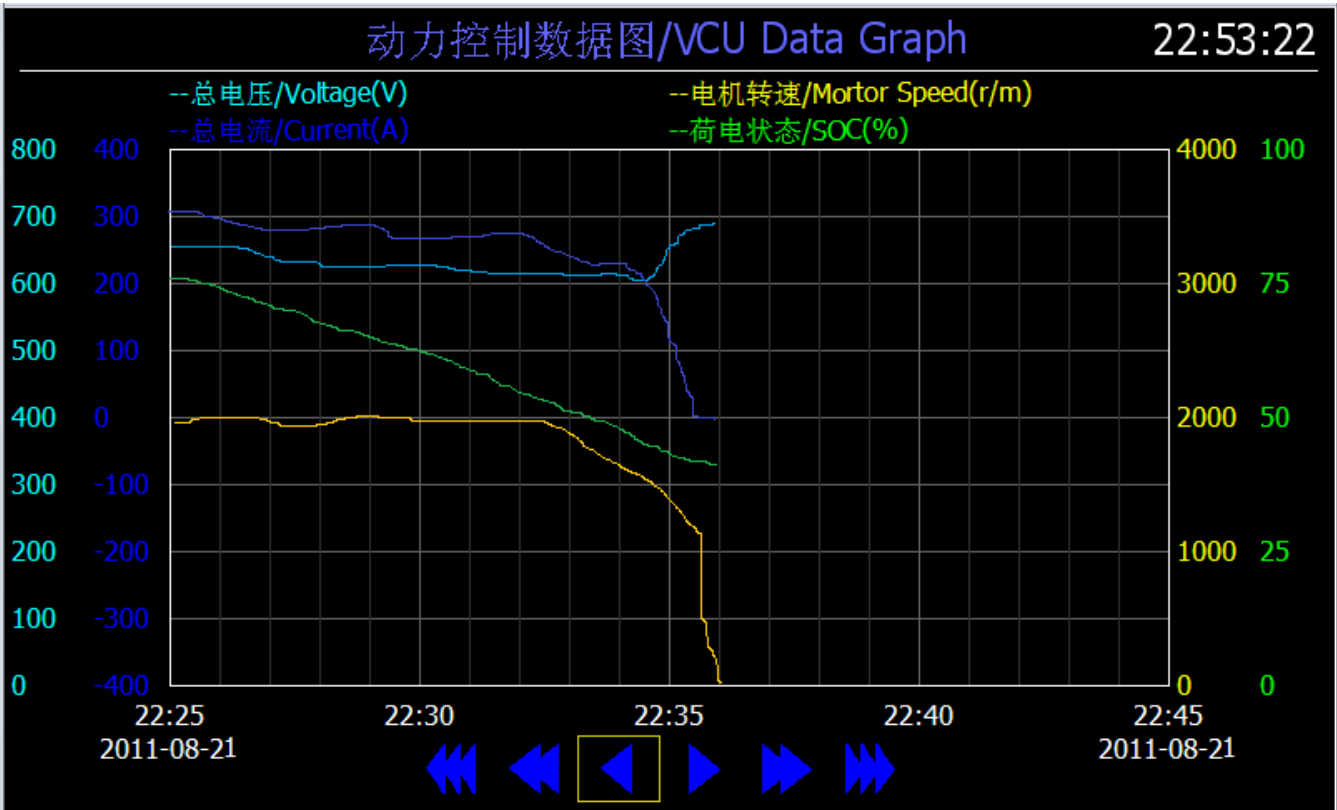


图 8-15 显示 12/ Fig. 8-15 Display12

显示 12 是仪表部分车辆控制部分数据的记录显示, 记录间隔为 2 秒。按左右键可挪动选择键位置, 按确认键可向前向后移动画面。是后退一天, 后退一小时, 后退十分钟。是前进一天, 前进一小时, 前进十分钟。

Display 11 shows data record of VCU ,the record interval is 2 seconds. Click “Left” or “Right” Key to change selected button on the bottom of the screen, then click “OK” key can move the graph backwards or forwards.  backward 1 day,  backward 1 hour,  backward 10 minutes.  forward 1 day,  forward 1 hour,  forward 10 minutes。

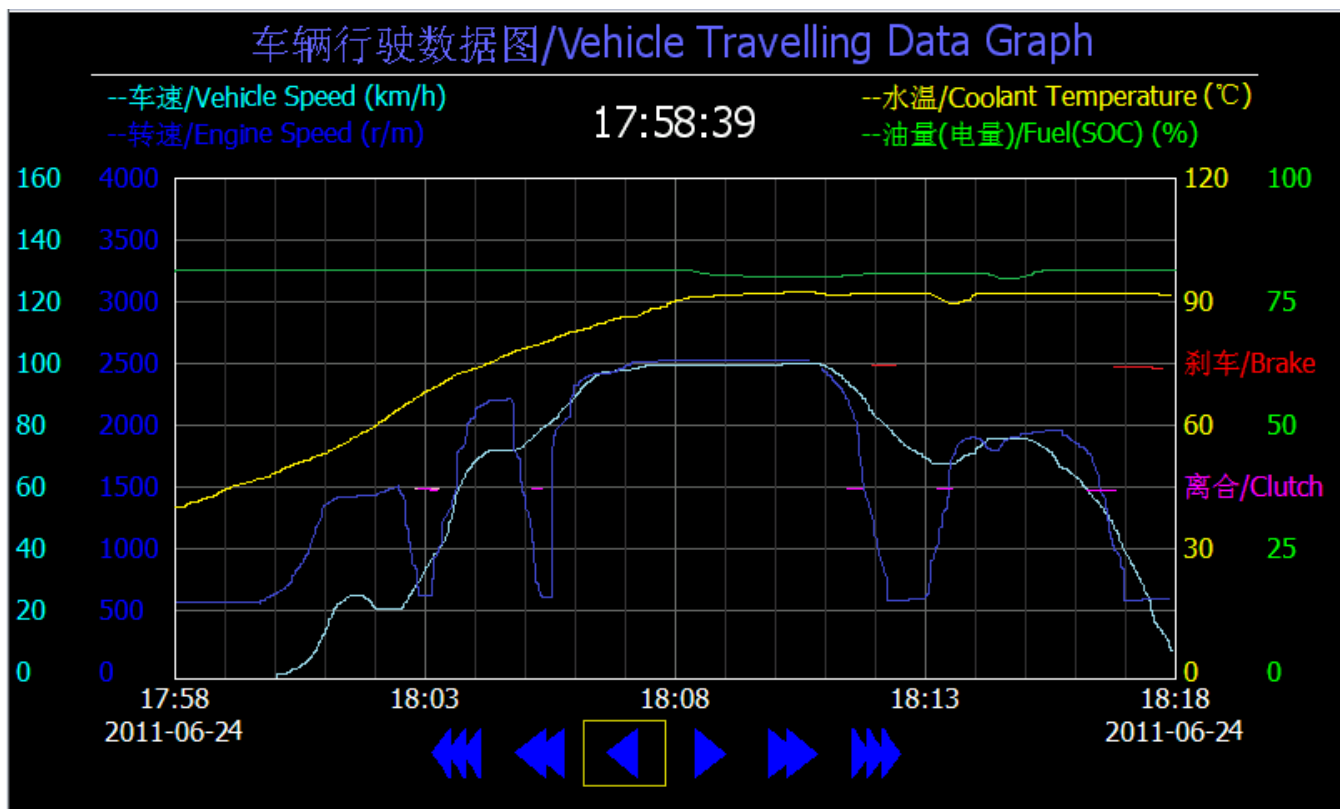


图 8-16 显示 13/ Fig. 8-16 Display13

显示 13 是仪表部分行车记录数据的显示，记录间隔为 2 秒。按左右键可挪动选择键位置，按确认键可

向前向后移动画面。是后退一天，后退一小时，后退十分钟。是前进一天，前进一小时，前进十分钟。

Display 11 shows travelling data record whose interval is 2 seconds. Click “Left” or “Right” Key to change selected button on the bottom of the screen, then click “OK” key can

move the graph backwards or forwards. backward 1 day,  backward 1 hour,  backward 10 minutes.  forward 1 day,  forward 1 hour,  forward 10 minutes.

8.1.6 视频显示 Video Display

按“视频键（ESC）”一次进入 TV1，再按一次进入 TV2，第三次返回

Click Video Key (ESC), Display loops among TV1, TV2 and data show.

8.2 液晶显示器 LCD Display Module

8.2.1 XS201-70, XS101-70

这几款液晶显示的显示画面和操作方式和 8.1 节介绍的仪表基本相似。由于液晶显示采用的触摸屏，除可以使用按键操作外，还可以通过触摸直接快捷地切换画面。

The display and operation of these LCD Modules is similar to that of dashboard which is described in 8.1. Because they are touch screen, so change among displays is more convenient.

除已经介绍的显示页外，液晶显示模块多了一菜单页。在菜单页外的任意页触摸特殊图标之外的屏幕部分都会进入菜单页，点击相应页面图标则进入相应画面(如图 8-17 所示)。

In addition to descript pages ,Click area other than special icons to enter Menu Display which is illustrated in Fig.8-17.

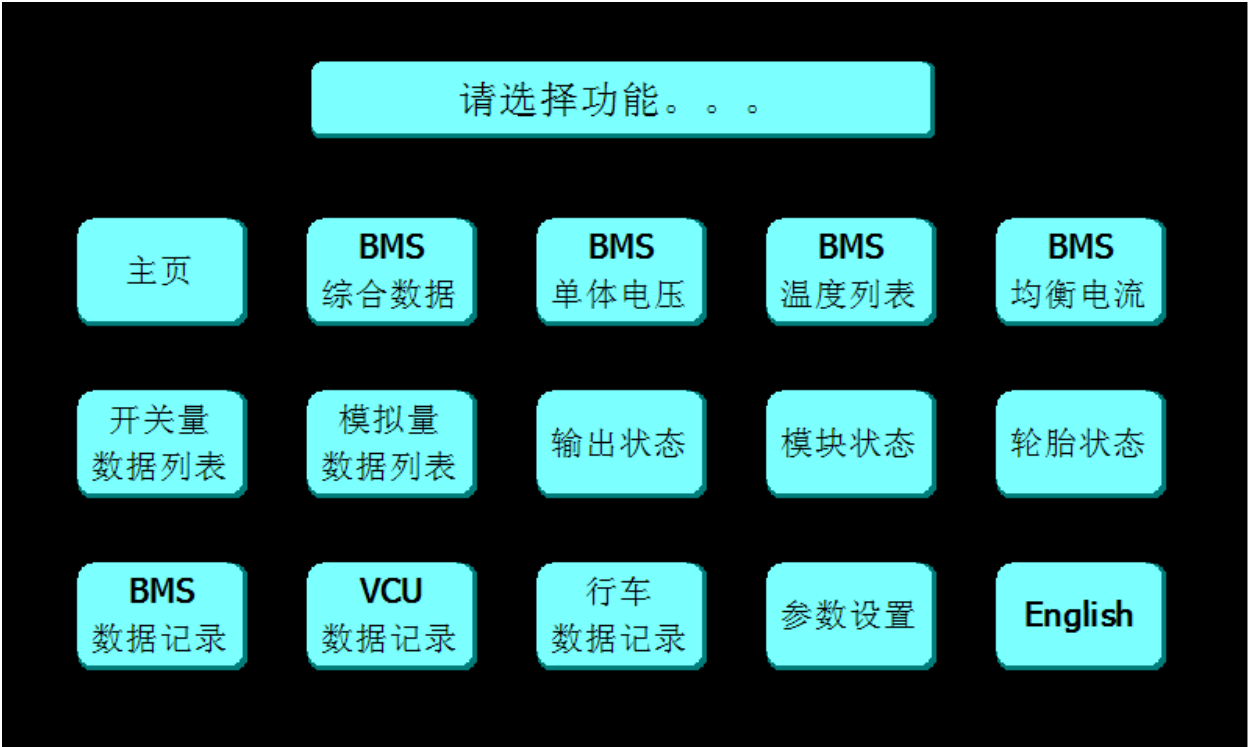


图 8-17 菜单 Fig. 8-17 Menu

8.2.2 XS201-35,XS101-35

开机显示缺省画面，又称作主页，所图 8-18 所示：

The Default display, called Main Page as well and illustrated in Fig.8-18, is displayed on power-up.

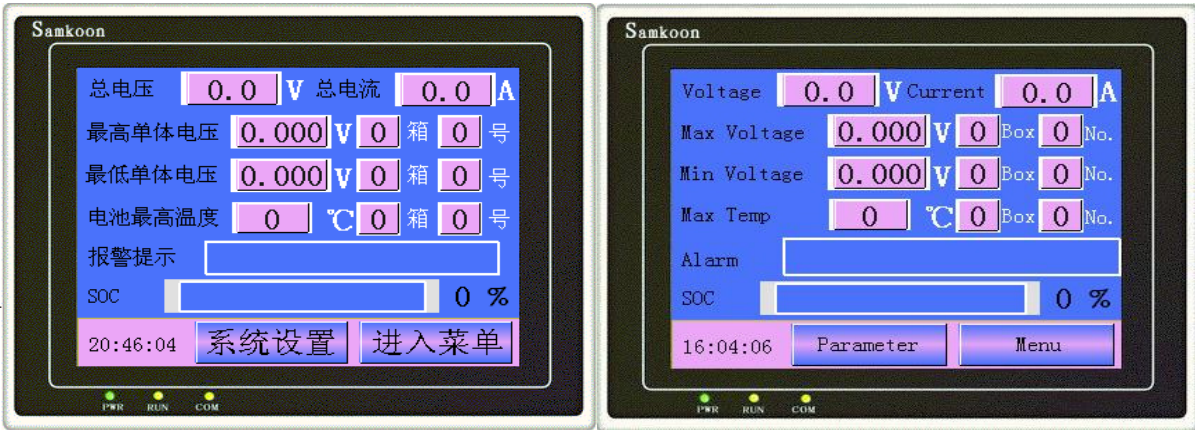


图 8-18 显示 1—缺省页/Fig. 8-18 Display1--Default Page

缺省页中有两个操作按钮分别为：和. 点击

按钮，弹出图 8-19 所示画面。点击，弹出图 8-20 所示画面。

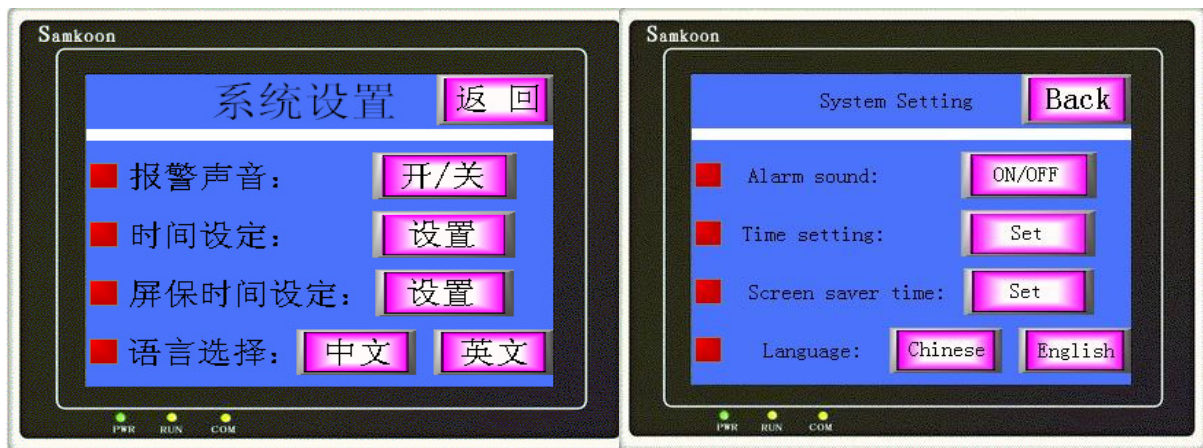


图 8-19 显示 2—系统设置/ Fig. 8-19 Display2—Parameter Setting

There are 2 buttons on the default page, they are **Parameter** and **Menu**. Click **Parameter** to enter Display 2 which is illustrated in Fig.8-19. Click **Menu** to enter Display 3 which is illustrated in Fig.8-20.

在“系统设置”页面中，可以对触摸屏的“报警声音”、“当前时间”、“屏保时间”、“显示语言”进行设置，设置完后按 **返回**，回到缺省页。

On “Parameter Setting” page, you can set “alarm sound”, “Current Time”, “Screen Save Time” and “Language”, After setting, click **Back** for returning to default page.

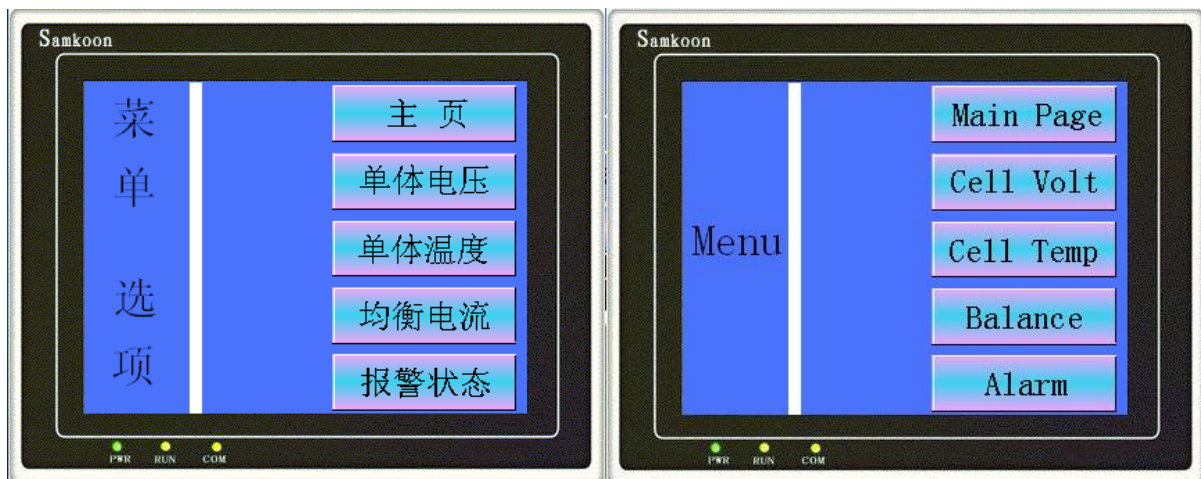


图 8-20 显示 3--菜单/ Fig. 8-20 Display3--Menu

在菜单页上，按 **主页** 回缺省画面；按 **单体电压** 可以查看各单体电池电压，数据显示如图 8-21 所示；按 **单体温度** 看电池温度，数据显示如图 8-22 所示；按

均衡电流

看均衡状态，数据显示如图 8-23 所示；按

报警状态

查看报警信息，数据

显示年如图 8-24 所示。

Main Page

On Menu Page, Click

for returning to default page .Click

Cell Volt

to view voltage of individual battery as illustrated in Fig.8-21;

Cell Temp

Click

to view battery temperature as illustrated in Fig.8-22; Click

Balance

to view state of energy balancing as illustrated in Fig.8-23; Click

Alarm

to view alarm information as illustrated in Fig.8-24.



图 8-21 显示 4--单体电压/ Fig.8-21 Display 4--Battery Voltage

在显示第四页，点击

下一页

可看下一箱电池电压；点击

上一页

看上一箱电池电压；点击

返回

，返回“菜单”页。

On Display 4 Click

Down

to view battery voltage of next box. Click

Up

to

view battery voltage of previous box.

在显示第五页，点击

下一页

可看下一箱电池温度；点击

上一页

看上一箱电池温度；点击

返回

，返回“菜单”页。

On Display 5 Click

Down

to view battery temperature of next box. Click

Up

to view battery temperature of previous box.



图 8-22 显示 5—电池电压/ Fig. 8-22 Display 5--Battery Temperature

在显示第六页，点击 **下一页** 可看下一箱均衡电流；点击 **上一页** 看上一箱均衡电流；点击 **返回**，返回“菜单”页。

On Display 6 Click **Down** to view balance current of next box. Click **Up** to view balance current of previous box.



图 8-23 显示 6—均衡电流/ Fig. 8-23 Display 6—Balance Current

在显示第七页，点击 **下一页** 可看下一组报警数据；点击 **上一页** 看上一组报警数据；点击 **返回**，返回“菜单”页。

On Display 7 Click **Down** to view next group of alarm data. Click **Up** to view previous group of alarm data.

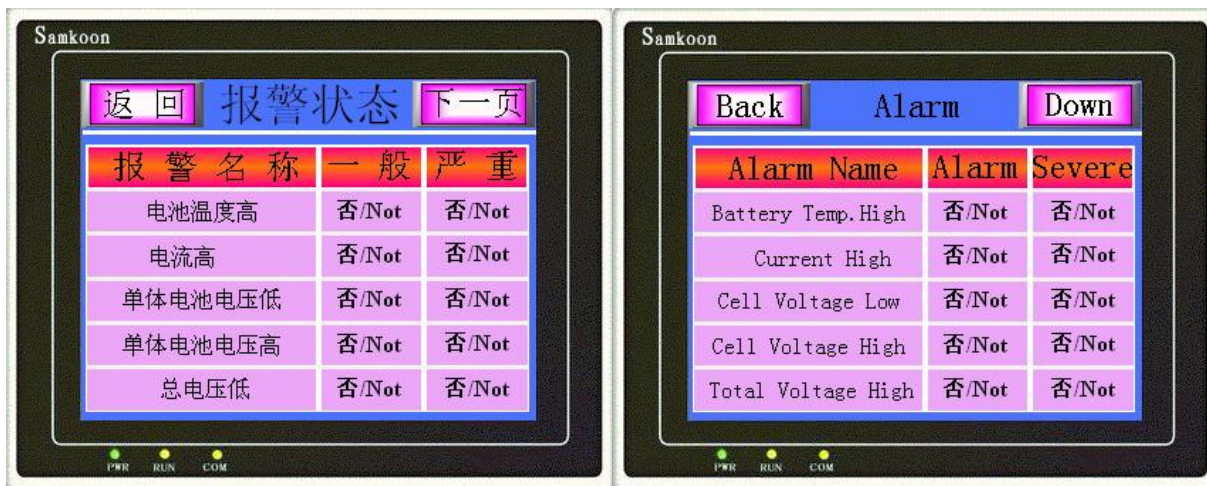


图 8-24 显示 7—报警状态/ Fig. 8-24 Display 7—Alarm Signal

9 参数设置 Set Parameter

9.1 参数设置需求 Requirement for Set Parameter

Window XP/Vista/Win7

RS232 串口和串口线/RS232 serial port and cable

设置参数是通过串口来实现的，所以设置参数前，确信您的电脑至少具有一个串口，串口号必须小于 8。

We set parameter via UART, so make sure if your computer has at least one COM port before you try to set parameter, and Com Port No. must be smaller than 8.

如果电脑没有串口，则可以购置一根 USB 转 RS232 串口的电缆，正确驱动后，系统就会添置一串口了，从设备管理器中可以查看串口的端口号(如图 9-1-1 所示)，如果端口号大于 7，可以将其强制成 7 以下。

If there is no serial port in your computer, you can get one by installing a USB-Serial Port cable to your computer. Having successfully installed device drive of this cable, your computer will get a serial port which can be shown in Device Manager as shown in Fig.9-1-1. If Port No. is greater than 7, Set it to a smaller number .



在 BMS 设置软件中(如图 9-1-2 所示)，点击  来设置串口参数，除波特率和端口号要设置外，其余可选择成缺省参数。选择端口号为刚才安装的端口号。如果利用仪表串口来设置参数，选择波特率为 115200bit/sec, 其他情况选择 38400。



Click  to set the serial port as shown in Fig.9-1-2. Set serial port with default parameters except for

Baud Rate and Port No. Select Port No with that shown in Device Manager. If you set parameter via dashboard, select baud rate 115200, otherwise choose baud rate 38400.

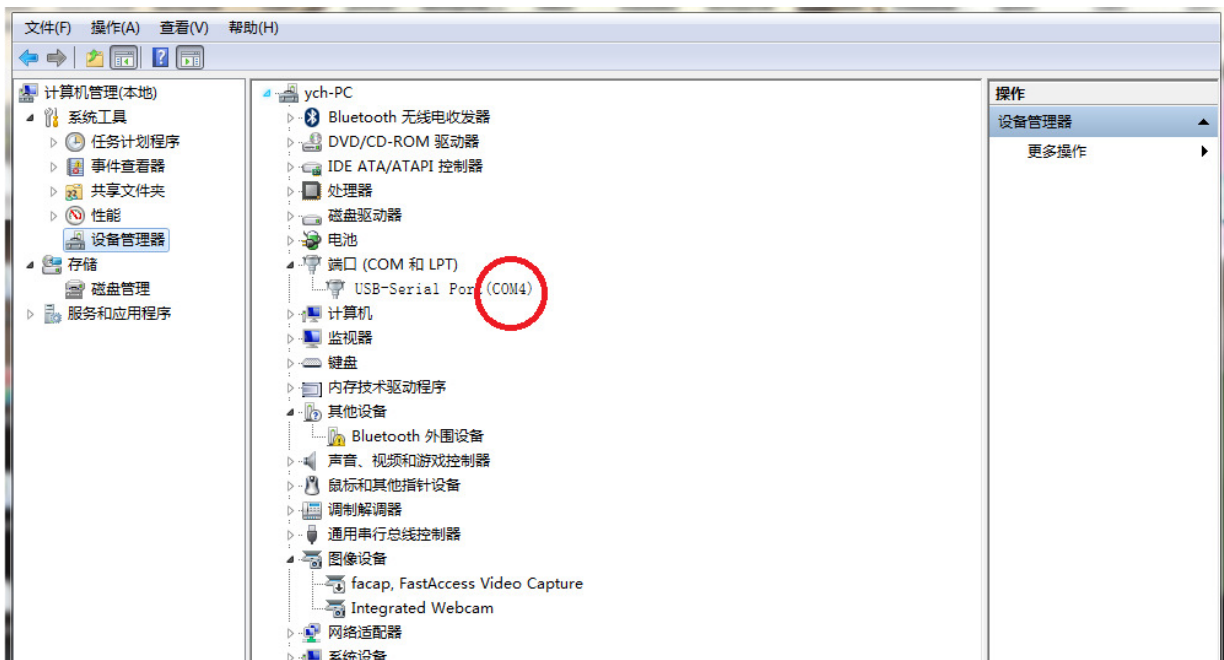


图 9-1-1 从设备管理器中查看串口号
Fig 9-1-1 Confirm Port No. by Device Manager



图 9-1-2 串口设置
Fig 9-1-2 Set Serial Port

在设置参数前最好下载功能做一下参数备份，所有参数都被备份在 C:\mewyeah\module\车型编号\下，如图 9-1-3 所示，车型编号为 DK202-75-400。

Before you try to modify parameters, download current parameters for as back-up. All downloaded data are stored in C:\mewyeah\module\vehiclename\. As shown in Fig.9-1-3, the vehicle name is DK202-75-400.

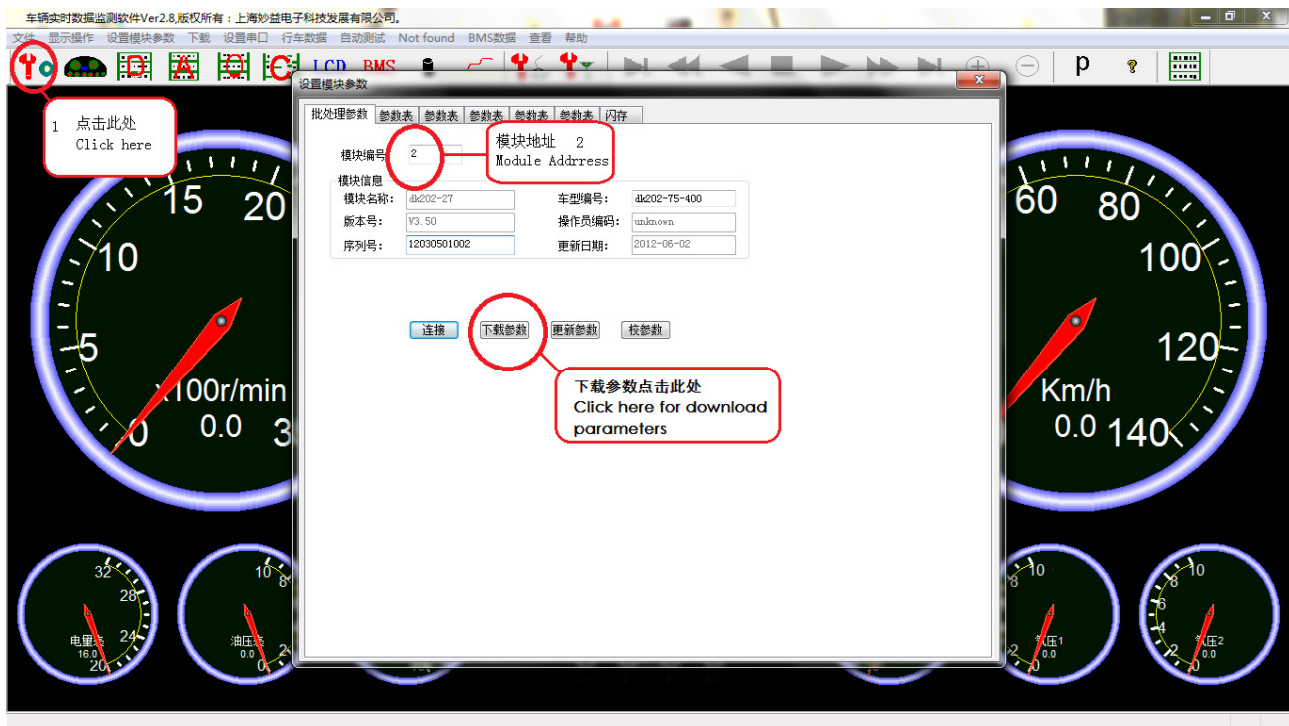


图 9-1-3 下载参数

Fig 9-1-3 Download Parameters

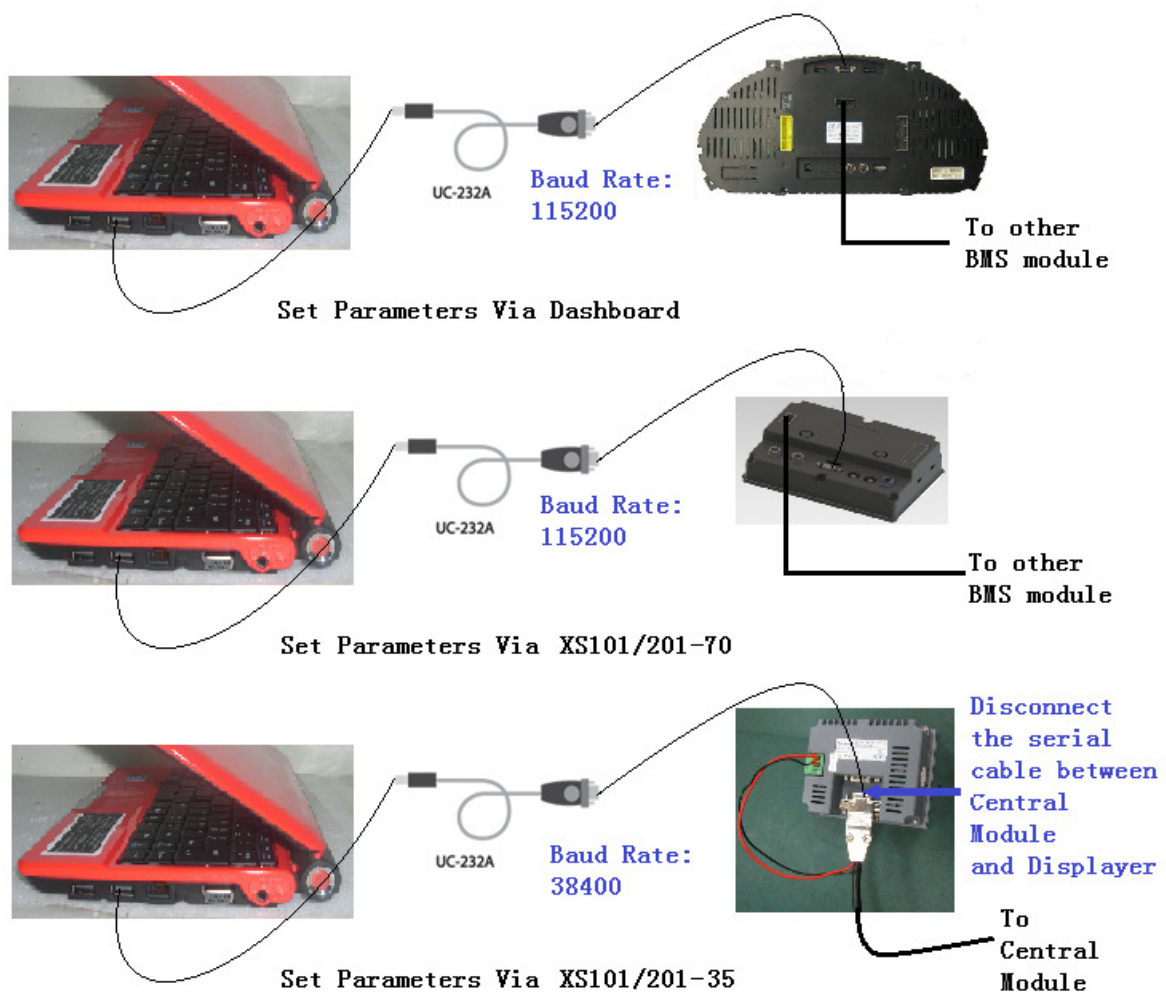


图 9-2-1 设置参数接线方式 Fig.9-2-1 Connect @ Set Parameter

9.2 参数设置步骤 Step of Set Parameter

第一步，按图 9-2-1 所示连接好线。

Step 1, Connect the computer with BMS according to Fig.9-2-1.

第二步，打开软件 mewyeah.exe, 应用界面如图 9-2-2 所示。

Step 2, Launch ,Mewyeah.exe, the window of this application is shown in Fig.9-2-2.

第三步，点击工具栏上 **BMS** 图标，弹出身份验证窗口，如图 9-2-3 所示。输入正确身份，点“确认”按钮，进入设置窗口，如图 9-2-4 所示。如果身份正确，设置窗口的按钮有效，否则为灰色无效状态。

Step3, Click **BMS** , a dialog window, as shown in Fig.9-2-3, will be pop up for verifying password. Input correct Operator ID and Password. Click “OK” button for entering Parameter Set Window which is shown in Fig.9-2-4. If operator's ID has been verified successfully all buttons on Parameter Set Window are valid, or they are invalid and turn to be grayed.

第四步，点连接

Step 4, Click Link

第五步，输入正确的模块编号，车型编号。

Step 5, Fill up Module No and Vehicle Name.

第六步，从模块取出原有参数或读取电脑上文件。

Step 6, Fetch original parameter from module, or read local file.

第七步，修改参数。

Step 7, Modify parameter.

第八步，发送参数到模块。

Step 8, Send parameter to module.

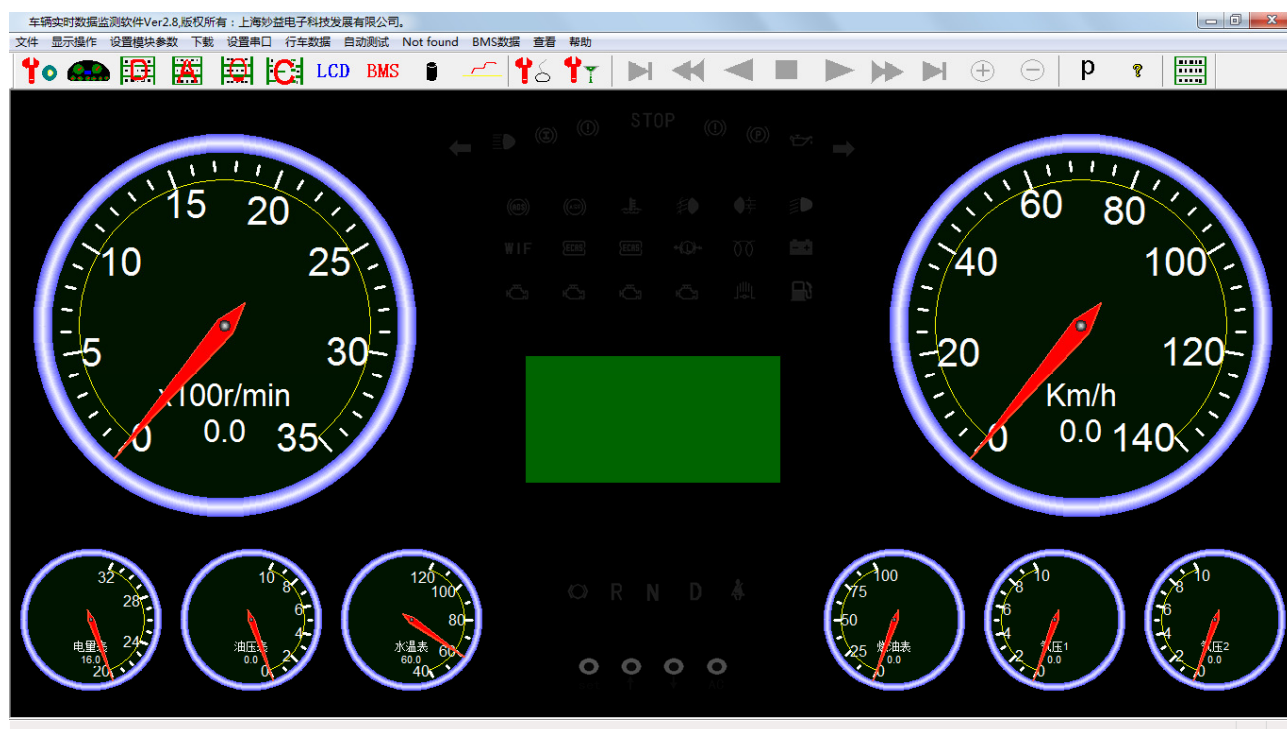


图 9-2-2 参数设置主窗口/Fig.9-2-2 Main Window

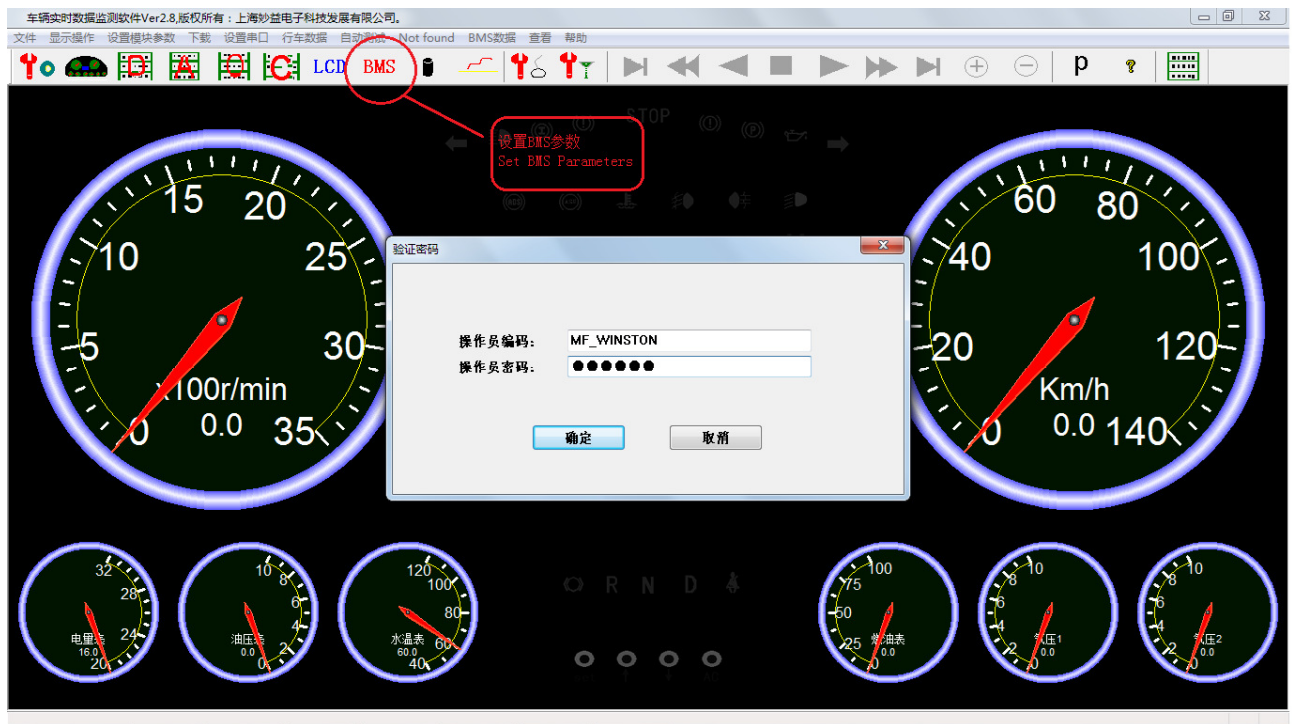


图 9-2-3 验证操作员身份/ Fig.9-2-3 Verify Operator's ID



图 9-2-4 参数设置窗口/ Fig.9-2-4 Parameter Set Window

如图 9-2-4 所示，BMS 参数由两部分组成，上部分为中控模块参数，下部分为终端模块参数。对中控模块来说，终端模块部分参数无效。对终端模块来说，中控参数无效。对集成模块来说，两部分参数均有效。

As illustrated in Fig.9-2-4, BMS parameters is divided into 2 groups. The upper part is the group for Central Module. The Lower part is the group for Terminal Module. For Central Module, parameters for Terminal

Module are invalid. For Terminal Module, parameters for Central Module are invalid. For Integral Module, both groups of parameters are valid.

参数解释 Explanation of Parameters:

中控模块参数 Parameters of Central Module:

0 模块控制 Module Control: 用户不能修改。Module ID which can't be modified by user.

1 模块地址 Module Address:

2 上电延时时间 Power-up time:单位 Unit 100ms,

3 断电延时时间 Power-down time:单位 Unit 100ms

4 电池箱数 number of battery box:

5 串联箱数 number of batteries which are serially chained:

6 电池总数 number of batteries in whole systems:

7 并联总数 number of batteries which are paralleled:

8 温度总数 number of temperature:

9 均衡控制 balancing control:

bit0:0=均衡总禁止 disable balancing, 1=均衡允许 enable balancing;

bit1:0=充电时禁止均衡 disable balancing while charging,1=充电时允许均衡 enable balancing while charging.

bit2:0=放电时允许均衡 disable balancing while discharging,1=放电时允许均衡 enable balancing while discharging.

10 均衡电流 balancing current:最大允许的均衡电流, 缺省值为 0.8A,maximal balancing current, default value is 0.8 A.

11 最小均衡压差 minimal differential voltage: 压差小于此数, 均衡被禁止, 缺省值 0.10V。if differential voltage is less than this value, balancing is forbidden, the default value is 0.10V.

12-13 最小均衡电压 minimal balancing voltage: 电压小于此数, 均衡被禁止, 缺省值 3.40V。if voltage is less than this value, balancing is forbidden, the default value is 3.40V.

14 启动风扇温度 Temperature for starting cooling fan: 缺省值 35℃。the default value is 35℃.

15 温度配置 temperature configure:0~127 代表每箱温度数目为该固定数 0~127 means the number of temperature in any box is equal to this filled data, > 127 代表温度与电池比例为 1: 1, >127 means number of temperature is the same with number of batteries.

16-17 单体充电上限(一般报警)The charging limit of voltage (ordinary alarm):单体电池充电电压高于该值, 则会产生一般报警, 缺省值 3.65V。If the charging voltage of cell voltage is greater than this value, ordinary alarm signal will be triggered. The default value is 3.65v.

18-19 单体充电上限(严重报警)The charging limit of voltage (severe alarm):单体电池充电电压高于该值, 则会产生严重报警, 缺省值 3.75V。If the charging voltage of cell voltage is greater than this value, severe alarm signal will be triggered. The default value is 3.75v.

20-21 充电总电压上限(一般报警)The charging limit of overall voltage (ordinary alarm):电池充电总电压高于该值, 则会产生一般报警, 缺省值 3.65V 乘以电池数。If the charging voltage of cell voltage is greater than this value, ordinary alarm signal will be triggered. The default value is 3.65v multiples with number of batteries.

22-23 充电总电压上限(严重报警)The charging limit of overall voltage (severe alarm):电池充电总电压高于该值, 则会产生严重报警, 缺省值 3.75V 乘以电池数。If the charging voltage of cell voltage is greater than this value, severe alarm signal will be triggered. The default value is 3.75v multiples with number of batteries.

24-25 放电电流上限(一般报警)The discharging limit of current (ordinary alarm):电池放电电流高于该值, 则会产生一般报警。If the discharging current is greater than this value, ordinary alarm signal will be triggered.

26-27 放电电流上限(严重报警)The discharging limit of current (severe alarm):电池放电电流高于该值, 则会产生严重报警。If the discharging current is greater than this value, severe alarm signal will be triggered.

28-29 单体放电下限(一般报警)The discharging limit of voltage (ordinary alarm):单体电池放电电压低于

该值, 则会产生一般报警, 缺省值 2.50V。If the discharging voltage of cell voltage is lower than this value, ordinary alarm signal will be triggered. The default value is 2.50v.

30-31 单体放电下限(严重报警)The discharging limit of voltage (severe alarm):单体电池放电电压低于该值, 则会产生严重报警, 缺省值 2.30V。If the discharging voltage of cell voltage is lower than this value, severe alarm signal will be triggered. The default value is 2.30v.

32 SOC 报警下限(一般报警)The alarm limit of SOC (ordinary alarm):SOC 低于该值, 则会产生一般报警, 缺省值 15%。If SOC is lower than this value, ordinary alarm signal will be triggered. The default value is 15%.

33 SOC 报警下限(严重报警)The alarm limit of SOC (severe alarm):SOC 低于该值, 则会产生严重报警, 缺省值 5%。If SOC is lower than this value, severe alarm signal will be triggered. The default value is 5%.

34 不平衡压差(一般报警)alarm limit of differential voltage (ordinary alarm):单体电压差高于该值, 则会产生一般报警, 缺省值 0.20V。If differential voltage between any pair of batteries is greater than this value, ordinary alarm signal will be triggered. The default value is 0.20v.

35 不平衡压差(严重报警)alarm limit of differential voltage (severe alarm):单体电压差高于该值, 则会产生严重报警, 缺省值 0.30V。If differential voltage between any pair of batteries is greater than this value, severe alarm signal will be triggered. The default value is 0.30v.

36 报警温度上限(一般报警)upper alarm limit of temperature (ordinary alarm):电池温度高于该值, 则会产生一般报警, 缺省值 50℃。If any battery temperature is greater than this value, ordinary alarm signal will be triggered. The default value is 50℃.

37 报警温度上限(严重报警)upper alarm limit of temperature (severe alarm):电池温度高于该值, 则会产生严重报警, 缺省值 55℃。If any battery temperature is greater than this value, severe alarm signal will be triggered. The default value is 55℃.

38 报警温度下限(一般报警)lower alarm limit of temperature (ordinary alarm):电池温度低于该值, 则会产生一般报警, 缺省值 -20℃。If any battery temperature is lower than this value, ordinary alarm signal will be triggered. The default value is -20℃.

39 报警温度下限(严重报警)lower alarm limit of temperature (severe alarm):电池温度低于该值, 则会产生严重报警, 缺省值 -30℃。If any battery temperature is lower than this value, severe alarm signal will be triggered. The default value is -30℃.

40 同箱不平衡温差(一般报警)alarm limit of differential temperature within the same box (ordinary alarm):同箱电池温差高于该值, 则会产生一般报警, 缺省值 5℃。If the differential temperature within the same box is greater than this value, ordinary alarm signal will be triggered. The default value is 5℃.

41 同箱不平衡温差(严重报警)alarm limit of differential temperature within the same box (severe alarm):同箱电池温差高于该值, 则会产生严重报警, 缺省值 10℃。If the differential temperature within the same box is greater than this value, severe alarm signal will be triggered. The default value is 10℃.

42-43 过充保护单体恢复电压 Cell voltage for cancelling Over-Charging Protect:当单体电压低于该值时, 过充保护才会撤销, 缺省值 3.40V。When the top cell voltage goes below this value, Over-Charging Protect will be cancelled. The default value is 3.40V.

44-45 过放保护单体恢复电压 Cell voltage for cancelling Over-Discharging Protect:当单体电压高于该值时, 过放保护才会撤销, 缺省值 3.20V。When the lowest cell voltage goes above this value, Over-Discharging Protect will be cancelled. The default value is 3.20V.

46-47 电流传感器满量程值 The full scale of current transmitter: 对应电流传感器输出 4V 电压时, 被测的电流。The measured current correspondent to 4V output of current transmitter.

48-49 单体电池安时数 The AH of cell battery: 单位为安时 the resolution is AH

50-51 满充电量 The maximal electric energy: 单位为 0.01 千瓦时, the resolution is 0.01kwh

52-53 放电总电压下限(一般报警)The discharging limit of overall voltage (ordinary alarm):电池放电总电压低于该值, 则会产生一般报警, 缺省值 2.50V 乘以电池数。If the discharging voltage of cell battery is lower than this value, ordinary alarm signal will be triggered. The default value is 2.50v multiples with number of

batteries.

54-55 放电总电压下限(严重报警)The discharging limit of overall voltage (severe alarm):电池放电总电压低于该值,则会产生严重报警,缺省值 2.30V 乘以电池数。If the discharging voltage of cell battery is lower than this value, severe alarm signal will be triggered. The default value is 2.30v multiples with number of batteries.

56 绝缘电阻下限 (一般报警) Lower limit of insulating resistor(ordinary alarm): 绝缘电阻低于该数时,产生一般报警。When insulating resistor goes below this value, ordinary alarm will be triggered.

57 绝缘电阻下限 (严重报警) Lower limit of insulating resistor(severe alarm): 绝缘电阻低于该数时,产生严重报警。When insulating resistor goes below this value, severe alarm will be triggered.

58-59 充电电流上限(严重报警)The charging limit of current (severe alarm):电池充电电流高于该值,则会产生严重报警。If the charging current is greater than this value, severe alarm signal will be triggered.

60 过充控制延时 Over-charging Delay Control: 当连续过充时间超过该值时,过充保护才动作,单位 0.1 秒。Over-charging protect takes effect only after over-charging occurs for more than this time continuously, the resolution is 0.1 second.

61 过放控制延时 Over-discharging Delay Control: 当连续过放时间超过该值时,过放保护才动作,单位 0.1 秒。Over-discharging protect takes effect only after over-discharging occurs for more than this time continuously, the resolution is 0.1 second.

62 过充保护恢复时间 Over-charging Protect resume time:发生过充保护发生情况下,保护条件消失后,经历时间超过该值后,过充保护才能撤销。Under Over-charging protect circumstance, if the time after the over-charging protect condition disappears is more than this value, over-charging protect will be cancelled.

63 预置 SOC 值 Initial value of SOC:

终端模块参数 Parameters of Terminal Module:

0 电池箱号 Sequential No. of Box:

1 电压总序号 Sequential No of Voltage: 终端模块中第 1 个采集电压在 BMS 电压总表中的位置。The serial number in summary table that corresponds to the first sampling voltage in Terminal Module.

2 电压起始序号 Start No of Voltage: 终端模块里第一个被发出的电压序号,参见注 1。The start No. of voltage in Terminal Module that has been sent out. C.F. Note 1.

3 电压结束序号 End No of Voltage: 终端模块里最后一个被发送出去的电压序号,参见注 1。The end No. of voltage in Terminal Module that has been sent out . C.F. Note 1.

4 温度总序号 Sequential No of Temperature: 终端模块中第 1 个采集温度对应系统中温度总表的位置。The serial number in summary table that corresponds to the first sampling temperature in Terminal Module.

5 温度起始序号 Start No of Temperature: 终端模块里第一个被发给中控模块的温度序号,参见注 1。The start No. of Temperature in Terminal Module that has been sent out. C.F. Note 1.

6 电压结束序号 End No of Voltage: 终端模块里最后一个被发送出去的电压序号,参见注 1。The end No.of Temperature in Terminal Module that has been sent out. C.F. Note 1.

7 均衡控制 balancing control:

bit0:0=均衡总禁止 disable balancing, 1=均衡允许 enable balancing;

bit1:0=充电时禁止均衡 disable balancing while charging,1=充电时允许均衡 enable balancing while charging.

bit2:0=放电时允许均衡 disable balancing while discharging,1=放电时允许均衡 enable balancing while discharging.

如果系统中有中控模块存在,该数据被中控中均衡控制取代。If there is a Central Module in BMS system, this data will be override by the same one in Central Module.

8 均衡电流 balancing current:最大允许的均衡电流,缺省值为 0.8A,maximal balancing current, default value is 0.8 A.

如果系统中有中控模块存在,该数据被中控中均衡控制取代。If there is a Central Module in BMS system, this data will be override by the same one in Central Module.

9 最小均衡压差 minimal differential voltage: 压差小于此数, 均衡被禁止, 缺省值 0.10V。if differential voltage is less than this value, balancing is forbidden, the default value is 0.10V.

如果系统中有中控模块存在, 该数据被中控中均衡控制取代。If there is a Central Module in BMS system, this data will be override by the same one in Central Module.

10-11 最小均衡电压 minimal balancing voltage: 电压小于此数, 均衡被禁止, 缺省值 3.40V。if voltage is less than this value, balancing is forbidden, the default value is 3.40V.

12 启动风扇温度 Temperature for starting cooling fan: 缺省值 35℃。the default value is 35℃.

如果系统中有中控模块存在, 该数据被中控中均衡控制取代。If there is a Central Module in BMS system, this data will be override by the same one in Central Module.

注 1: 终端模块或集成模块实际管理的电池数可能少于该模块所能管理的模块数, 比如 DKX201-18T4 最多能管理 18 个电池, 但实际使用时只管理了 16 个电池数。接线上要求必须从高 V18 向下接到 V2, V1、V0 空着。这时, 起始电压序号要填 2, 结束电压序号要填 17。也就是说电压 2~电压 17 共 16 个数被发出去。

Note 1: In application, the real number of batteries that a Terminal Module or Integral Module manages may be less than what the module is capable of managing. For example, DKX201-18T4 is capable of managing 18 batteries. In real application, only 16 batteries may be managed by it. Wiring from V18 down to V2, let V0, V1 unconnected. Under such circumstance, the Start No of voltage is 2, the end No of voltage is 17, i.e. 16 voltages from voltage 2 to voltage 17 have been sent out.

10 通信 Communication

泰威 BMS 通信遵循 J1939 协议, 以下内容描述其主要特点, 详细特性起请参阅 J1939 相关资料。The Communication between modules of TW BMS complies with J1939. The following section will describe its highlights. For detailed specifications, please refer to relevant document concerning J1939.

10.1 通讯硬件要求 Hardware Requirement

(1) CAN 总线通信电缆为双绞屏蔽线, 注意屏蔽层要单点接地;

CAN cable should be pair of twisted line shielded Ground. Grounded by single point should be observed.

(2) 标配状态下仪表内有一 120 欧终端电阻, 如需取消请于订货时注明;

There is one 120 Ω served as resistor as terminal load in dashboard. If cancellation is needed, please notice it during ordering.

10.2 地址分配 Allocation of Module Address

(1) 仪表 Dashboard: 208

(2) BMS 中控模块 Central Module: 210

(3) BMS 终端模块 Terminal Module: 216-239

10.3 数据帧 Communication Frame

10.3.1 BMS 终端模块 Terminal Module

A. 单体电池电压 Voltage of Individual Battery

PGN65431 (PF=0XFF, PS=0X97, ID=18FF97SA, SA 为源地址 SA is Source Address)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

数据单位 Resolution: 0.0025V/bit

数据偏移 Offset: 0

BYTE 1: 帧序号 Serial No. of Frame。

BYTE 2, 3: bit1-bit11 电压 Voltage 1, bit12-bit16 电池组号 Box Number。

BYTE 4, 5: bit1-bit11 电压 Voltage 2, bit12-bit16 电池组号 Box Number。

BYTE 6, 7: bit1-bit11 电压 Voltage 3, bit12-bit16 电池组号 Box Number。

BYTE 8: 保留 Reserved。

B. 电池温度 Temperature of Battery

PGN65432 (PF=0XFF, PS=0X98 , ID=18FF98SA, SA 为源地址 SA is Source Address)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

数据单位 Resolution: 1°C/bit

数据偏移 Offset: -40°C

BYTE 1: 帧序号 Serial No. of Frame。

BYTE 2: 温度 Temperature 1。

BYTE 3: 温度 Temperature 2。

BYTE 4: 温度 Temperature 3。

BYTE 5: 温度 Temperature 4。

BYTE 6: 温度 Temperature 5。

BYTE 7: 温度 Temperature 6。

BYTE 8: 保留 Reserved。

C. 单体电池均衡电流

PGN65433 (PF=0XFF, PS=0X99 , ID=18FF99SA, SA 为源地址 SA is Source Address)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

数据单位 Resolution: 0.1A/bit

数据偏移 Offset: 0

BYTE 1: 帧序号 Serial No. of Frame。

BYTE 2: Bit1-bit7 均衡电流 Balance Current 1, Bit8=0 放电 Discharge, bit8=1 充电 Charge。

BYTE 2: Bit1-bit7 均衡电流 Balance Current 2, Bit8=0 放电 Discharge, bit8=1 充电 Charge。

BYTE 2: Bit1-bit7 均衡电流 Balance Current 3, Bit8=0 放电 Discharge, bit8=1 充电 Charge。

BYTE 2: Bit1-bit7 均衡电流 Balance Current 4, Bit8=0 放电 Discharge, bit8=1 充电 Charge。

BYTE 2: Bit1-bit7 均衡电流 Balance Current 5, Bit8=0 放电 Discharge, bit8=1 充电 Charge。

BYTE 2: Bit1-bit7 均衡电流 Balance Current 6, Bit8=0 放电 Discharge, bit8=1 充电 Charge。

BYTE 8: 保留 Reserved。

10.3.2 BMS 中控模块 Central Module

A. 第一帧 The First Frame

PGN65434 (PF=0XFF, PS=0X9A , ID=18FF9AD2)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

BYTE 1: 帧序号=0 Serial No. of Frame=0。

BYTE 2-3: 总电流 Current; 单位 Resolution: 0.1A/bit; 偏移 Offset: 32000。

BYTE 4-5: 总电压 Overall Voltage; 单位 Resolution: 0.1V/bit; 偏移 Offset: 0。

BYTE 6: 电池充电状态 State of Charge (SOC); 单位: 0.4%/bit; 偏移 Offset: 0。

BYTE 7: 电池状态 1, State 1 Of Battery。

BYTE 8: 保留 Reserved。

电池状态 1--严重级, State 1 Of Battery—Severe Level:

bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1
SOC 太低	温度太高	电流太高	单压太低	单压太高	总压太高	总压太低	温度太低
SOC Low	Temp High	Current High	Cell Volt Low	Cell Volt High	Voltage High	Voltage Low	Temp Low

B. 第二帧 The Second Frame

PGN65434 (PF=0XFF, PS=0X9A , ID=18FF9AD2)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

BYTE 1: 帧序号=1 Serial No. of Frame=1。

BYTE 2-3: bit1-bit11 最高单体电压 Top Cell Voltage, bit12-bit16 电池箱号 Box No.; 单位 Resolution: 0.0025V/bit; 偏移 Offset: 0。

BYTE 4: 最高电压电池所在箱体序号 Position of Top Voltage Cell Within Its Box。

BYTE 5-6: bit1-bit11 最低单体电压 Bottom Cell Voltage, bit12-bit16 电池箱号 Box No.; 单位 Resolution: 0.0025V/bit; 偏移 Offset: 0。

BYTE 7: 最低电压电池所在箱体序号 Position of Bottom Voltage Cell Within Its Box。。

BYTE 8: 保留 Reserved。

C. 第三帧 The Third Frame

PGN65434 (PF=0XFF, PS=0X9A , ID=18FF9AD2)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

BYTE 1: 帧序号=2 Serial No. of Frame=2

BYTE 2: 最高电池温度 Top Temperature, 单位 Resolution: °C/bit; 偏移 Offset: -40°C。

BYTE 3: 最高温度电池所在箱体序号 Position of Top Temp Battery Within Its Box。

BYTE 4: 最高温度电池所在箱体编号 Box No. of Top Temp Battery。

BYTE 5: 电池状态 2/ State 2 Of Battery。

BYTE 6: 电池状态 3/ State 3 Of Battery 。

BYTE 7: 电池状态 4/ State 4 Of Battery 。

BYTE 8: 保留 Reserved。

电池状态 2—一般级别, State 2 Of Battery—Ordinary Level:

bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1
SOC 过低	温度过高	电流过高	单压过低	单压过高	总压过高	总压过低	温度过低
SOC Low	Temp High	Current High	Cell Volt Low	Cell Volt High	Voltage High	Voltage Low	Temp Low

电池状态 3—严重级别, State 3 Of Battery—Severe Level:

bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1
压差太大	温差太大	保留	保留	保留	均衡错误	绝缘故障	BMS 故障
Volt Imbalance	Temp Imbalance	Reserved	Reserved	Reserved	Balance Err	Insulation Err	BMS Err

电池状态 4—一般级别, State 3 Of Battery—Ordinary Level:

bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1
压差过大	温差过大	保留	保留	保留	均衡错误	绝缘故障	BMS 故障
Volt Imbalance	Temp Imbalance	Reserved	Reserved	Reserved	Balance Err	Insulation Err	BMS Err

这里温差是指同一箱里温度差别。不同电池箱的温差没有考虑，是由于安装位置和通风条件不一样，

温差可能比较大。但同一箱内温度差别不应太大，如果温差大可能有潜在隐患。

Here Temperature Imbalance refers to the case that temperature difference is bigger than normal within the same box. Temperature difference between different boxes is not concerned because temperature varies greatly to their position or vent condition. Temperature Imbalance may result from potential failure.

D. 第四帧 The Fourth Frame

PGN65434 (PF=0XFF, PS=0X9A , ID=18FF9AD2)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

BYTE 1: 帧序号=3 Serial No. of Frame=3.

BYTE 2: 组内最大温差 Top Temp Difference within the same box, 单位 Resolution: °C/bit; 偏移 Offset: -40°C。

BYTE 3: 最高温差所在箱体编号 Box No. of Top Temperature Difference。

BYTE 4-5: 电池剩余能量 Left Energy Of Battery; 单位 Resolution: 1kwh/bit; 偏移 Offset: 0 。

BYTE 6-7: 电池满充能量 Full Energy Of Battery; 单位 Resolution: 1kwh/bit; 偏移 Offset: 0 。

BYTE 8: 保留 Reserved。

E. 第五帧 The Fifth Frame

PGN65434 (PF=0XFF, PS=0X9A , ID=18FF9AD2)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

BYTE 1: 帧序号=4 Serial No. of Frame=4.

BYTE 2-3: 正极对地电阻 Resistance Between Positive Polarity And Ground。

BYTE 4-5: 负极对地电阻 Resistance Between Negative Polarity And Ground。。

BYTE 6: 电池总数 Number Of Battery。

BYTE 6: 温度总数 Number Of Temperature。

BYTE 8: 保留 Reserved。

F. 第六帧 The Sixth Frame

PGN65434 (PF=0XFF, PS=0X9A , ID=18FF9AD2)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

BYTE 1: 帧序号=5 Serial No. of Frame=5.

BYTE 2: 启动风扇温度 Temperature Above which Fan will be Started。

BYTE 3: 均衡控制 Balance Control。

BYTE 4: 最大均衡电流 Maximal Balance Current; 单位 Resolution: 0.1A/bit; 偏移 Offset: 0。

BYTE 5: 启动均衡压差 Volt Dif Threshold For Balance; 单位 Resolution: 0.01V/bit; 偏移 Offset: 0。

BYTE 6-7: 截止均衡电压 Cell Volt Threshold For Balance; 单位 Resolution: 0.01V/bit; 偏移 Offset: 0。

BYTE 8: 保留 Reserved。

均衡控制位定义 Balance Control:

bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1
保留	保留	保留	保留	保留	放电时允许	充电时允许	总允许
Reserved	Reserved	Reserved	Reserved	Reserved	EnabelDC	EnableC	EnableG

EnableDC=1 means Enabled At Discharge, otherwise, Forbidden

EnableC=1 means Enabled At Charge, otherwise, Forbidden

EnableG=0 means Balance is absolutely forbidden.

G. 第七帧 The Seventh Frame

PGN65435 (PF=0XFF, PS=0X9B , ID=18FF9BD2)

发送周期 Repetition of Sending: 500ms

优先级 Priority: 6

BYTE 1: 帧序号=6 Serial No. of Frame=6.

BYTE 2-3: 最高充电电压 Upper Limit of Charge Voltage; 单位 Resolution: 0.1V/bit; 偏移 Offset: 0。

BYTE 4-5: 请求充电电流 Requested Charge Current; 单位 Resolution: 0.1A/bit; 偏移 Offset: 0。

BYTE 6: 控制 Control: 0=Enable Charge, 1=Discharge。

BYTE 7: 保留 Reserved。

BYTE 8: 保留 Reserved。

11 应用实例 Instance of Application

12 应用实例 Instance of Application

12.1 剪草机 Lawn Mower

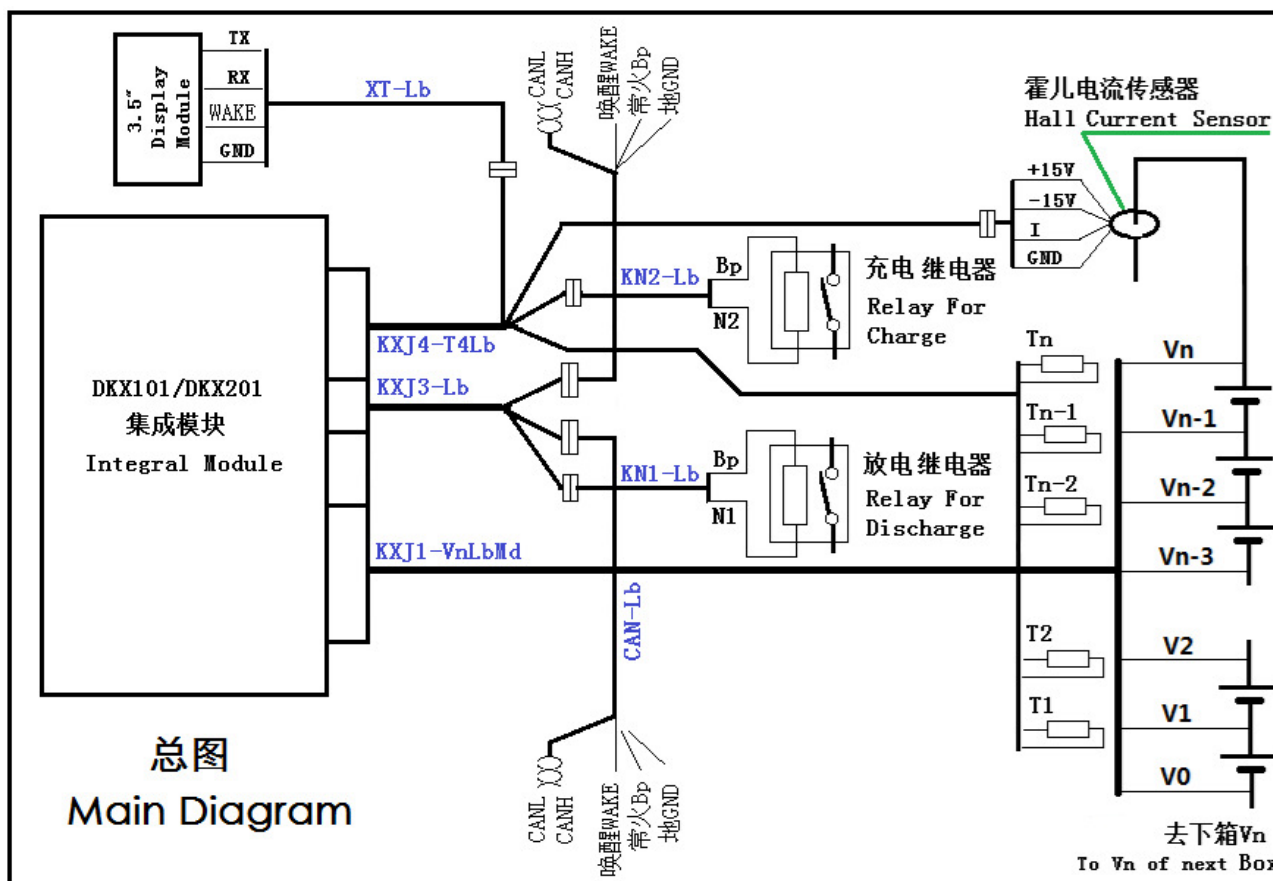
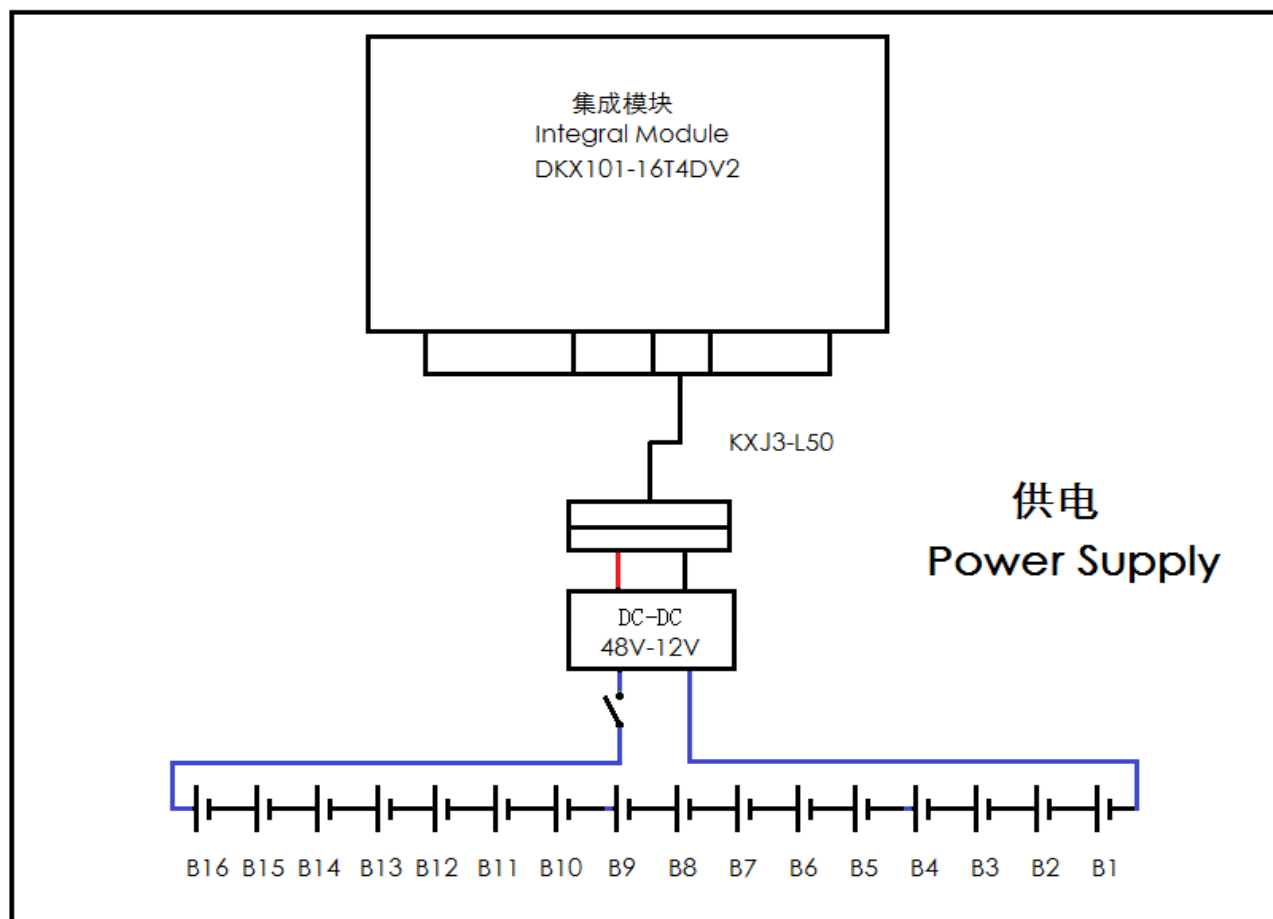
电池组 Battery Pack:

16 串 pcs of 160AH。

BMS 构成 Composition of BMS:

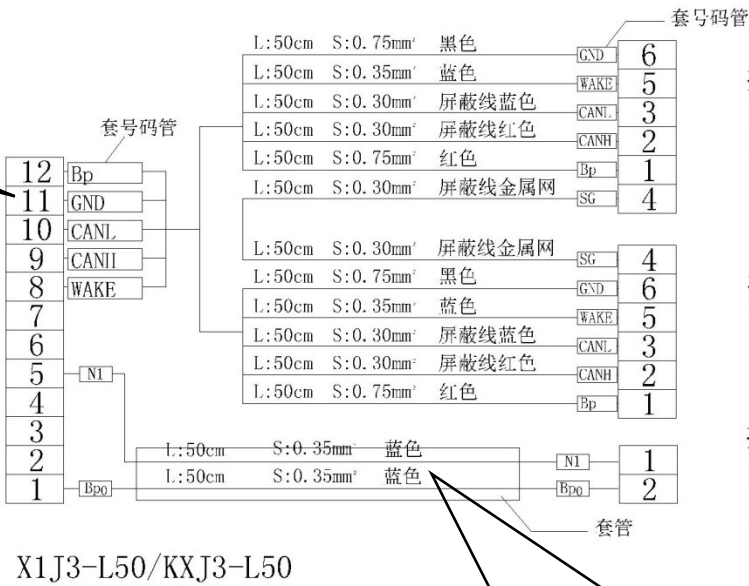
1 块集成模块 1 pcs of Integral Module: DKX101-16T4DV2, 1 块显示模块 1 pcs of Display Module: XS101-35 ,
1 只电流传感器 1 pcs of Current Sensor: FS200EK1, 1 套线束 1 set of Wiring Harness: DKX101-18XS。

接线图 Wiring:



数字为接插件
的孔位号

接插件： 174913-6
端 子： 173681-1



接插件： 282108-1
端 子： 282109-1
防水堵： 281934-2

接插件： 282090-1
端 子： 282110-1
防水堵： 281934-2

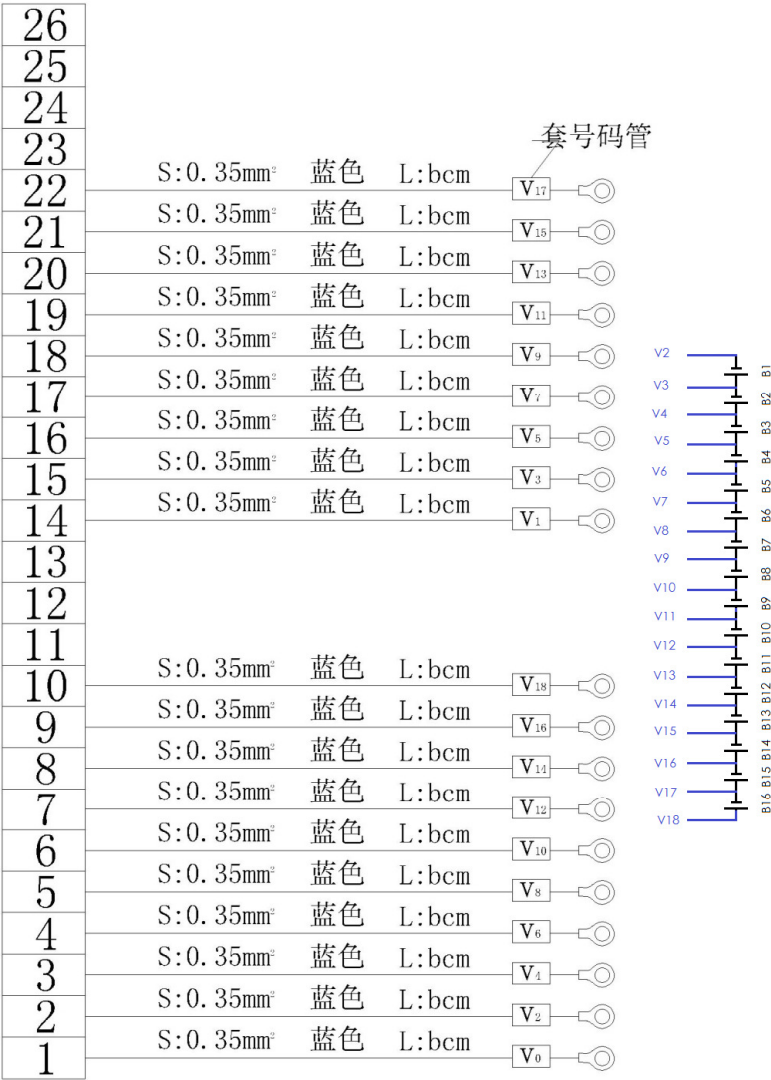
接插件： 282104-1
端 子： 282109-1
防水堵： 281934-2

L:50cm S:0.35mm² 蓝色表示：
线的长度为 50cm，线的型
号为 0.35mm² 的汽车专用线，
线的颜色为蓝色，

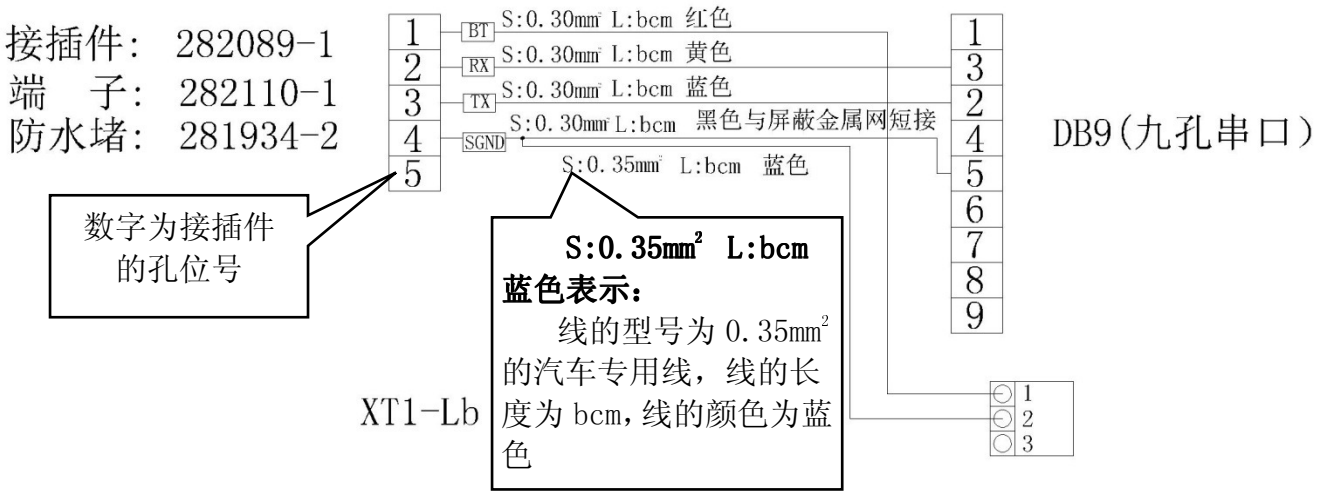
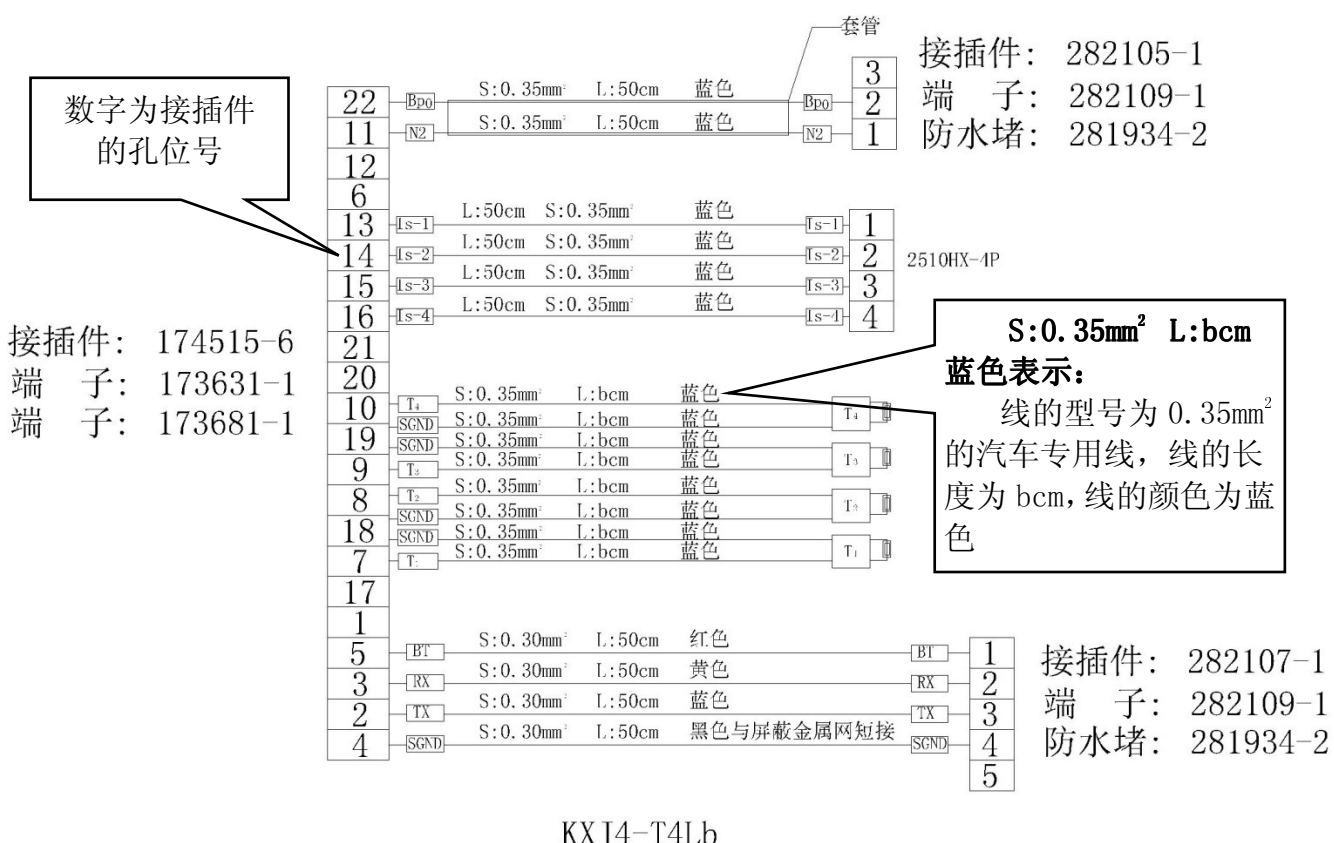
接插件： 174516-6

端 子： 173631-1

端 子： 173681-1



X1J1-VnLbMd



11.3 其他参考案例 Other instances of application

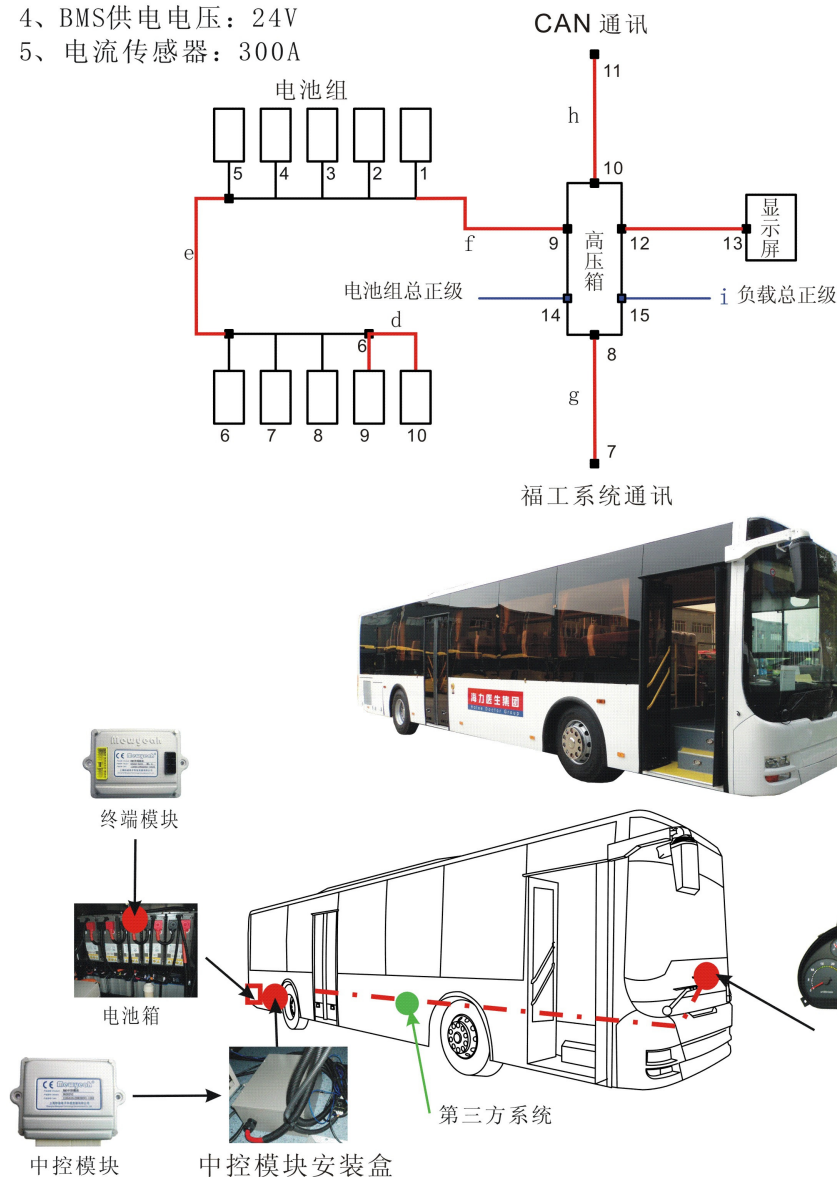
混合动力车案例

一、电池规格

华锂电池，电池容量：50AH，串数：80，组数：10

二、BMS规格

- 1、显示屏：彩色液晶仪表ZB286
- 2、终端模块：10个DX202-8T8
- 3、中控模块：1个DK202
- 4、BMS供电电压：24V
- 5、电流传感器：300A



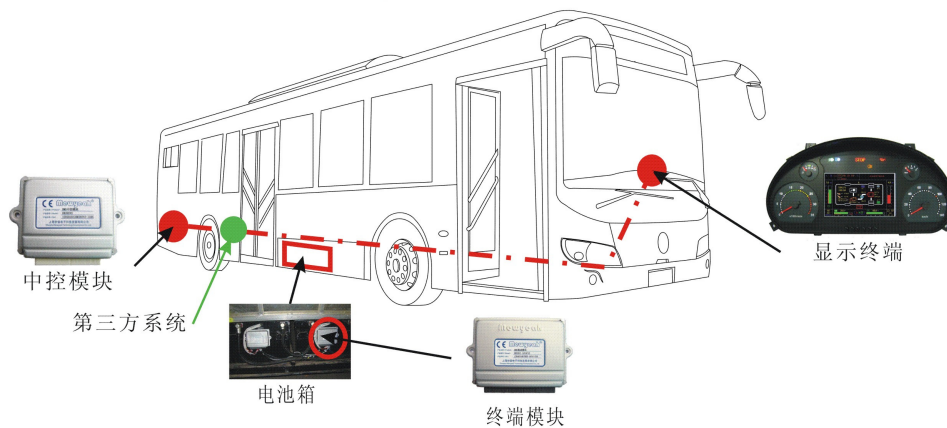
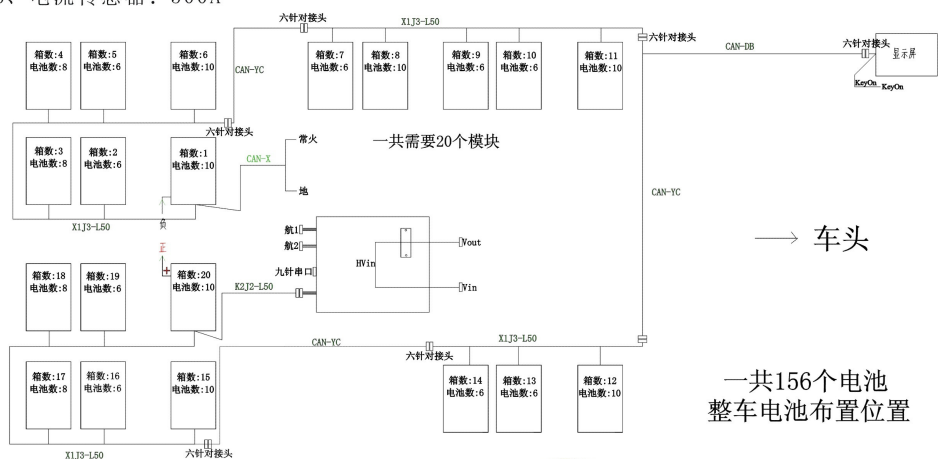
纯电动车案例

一、电池规格

温斯顿电池，电池容量：600AH，串数：156，组数：20

二、BMS规格

- 1、显示屏：彩色液晶仪表ZB286
- 2、终端模块：20个DX201-12T12
- 3、中控模块：1个DK202
- 4、BMS供电电压：24V
- 5、电流传感器：500A



储能设备案例

一、电池规格

温斯顿电池，电池容量：60AH，串数：8，组数：1

二、BMS规格

- 1、显示屏：3.5寸屏
- 2、集成模块：1个DKX201-8T4
- 3、BMS供电电压：24V
- 4、电流传感器：100A

